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Analyses of Natural Gases, 1988

By J. E. Hamak and Stella Sigler



124

Mission: As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally-owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. Administration.

Information Circular 9225

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Analyses of Natural Gases, 1988

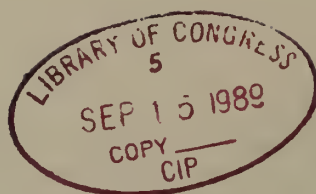
By J. E. Hamak and Stella Sigler



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ANALYSES OF NATURAL GASES, 1988

By J. E. Hamak¹ and Stella Sigler²

ABSTRACT

This publication contains analyses and related source data for 165 natural gas samples from 21 States and 1 foreign country. Of the total samples, 155 were collected during calendar year 1988. The remainder were collected earlier, but releases granting permission to publish were not received until 1988. All samples were obtained and analyzed as part of U.S. Bureau of Mines investigations of the occurrences of helium in natural gases of countries with free market economies. This survey has been conducted since 1917. The analyses published herein were made by mass spectrometer and chromatograph.

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INTRODUCTION

This U.S. Bureau of Mines publication contains analyses and related source data for 165 natural gas samples from 21 States and 1 foreign country. Of these samples, 155 were collected during calendar year 1988; 10 samples were collected earlier, but releases granting permission to publish were not received until 1988. All samples were obtained and analyzed as part of U.S. Bureau of Mines investigations of the occurrences of helium in natural gases of countries with free market economies. This survey has been conducted since 1917. The analyses published herein were made by the mass spectrometer and chromatograph.

The results of these investigations are published annually to make the information available to the petroleum industry and the general public. Thirty-three publications have presented the results of 14,929 gas analyses made prior to 1988. The first three bulletins (1-3)³ contain analyses and related source data on 5,218 gas samples collected from 1917 through 1960; these bulletins have been supplemented annually by information circulars (4-17, 19-24, 26-30, 32-33) containing 9,711 analyses of samples collected since 1960.

In 1976, a compilation of the analyses made prior to 1975 was prepared by the U.S. Bureau of Mines and published by the National Technical Information Service of the U.S. Department of Commerce (18). This compilation

contains 10,562 analyses of gas samples from gas and oil wells and natural gas pipelines in 37 States and 23 foreign countries. In 1982, a compilation of analyses made prior to 1981 was published (25). The 1982 publication contains 12,554 analyses of gas samples from gas and oil wells and natural gas pipelines in 39 States and 24 foreign countries and includes the analyses from the 1976 publication. The latest of these compilations was published in 1987 and contains 14,242 analyses made prior to 1986. The samples were taken from wells or pipelines in 40 States and 24 foreign countries (31).

In addition to being in the publications, all analyses and related information published through 1988 are available on a magnetic tape file. The tape is available for \$210 from the National Technical Information Service, Springfield, VA 22161, phone (703) 487-4650; orders should refer to U.S. Bureau of Mines tape PB 89-158661.

The helium survey program is conducted by soliciting natural gas samples throughout the United States and other countries with free market economies. Without the assistance of the petroleum industry, State and Federal agencies, and many individuals engaged in oil and gas exploration and production, the helium survey in its present scope would not be possible.

GEOLOGIC PROVINCES OF THE UNITED STATES

The tables include geologic province codes so each sample source can be located within a specific geologic province as defined by the Committee on Statistics of Drilling of the American Association of Petroleum Geologists.⁴ These provinces, which are given in the

following list and shown in figure 1, are delineated by political boundaries for convenience and for accommodation of data processing equipment. Not all of the provinces shown are gas-producing areas, so many of the codes are not used in this publication. Since State or Federal ownership is not always known in offshore areas, only one code is used for each State. Owing to the lack of information on the location of wells in Alaska, only one code, 972, is used for all wells.

The following list and figure 1 are taken from the article cited in footnote 4.

³Italic numbers in parentheses refer to items in the list of previous publications at the end of this report.

⁴Meyer, R. F. Geologic Provinces Code Map for Computer Use. AAPG Bull., v. 54, No. 7, July 1970, pp. 1301-1305.

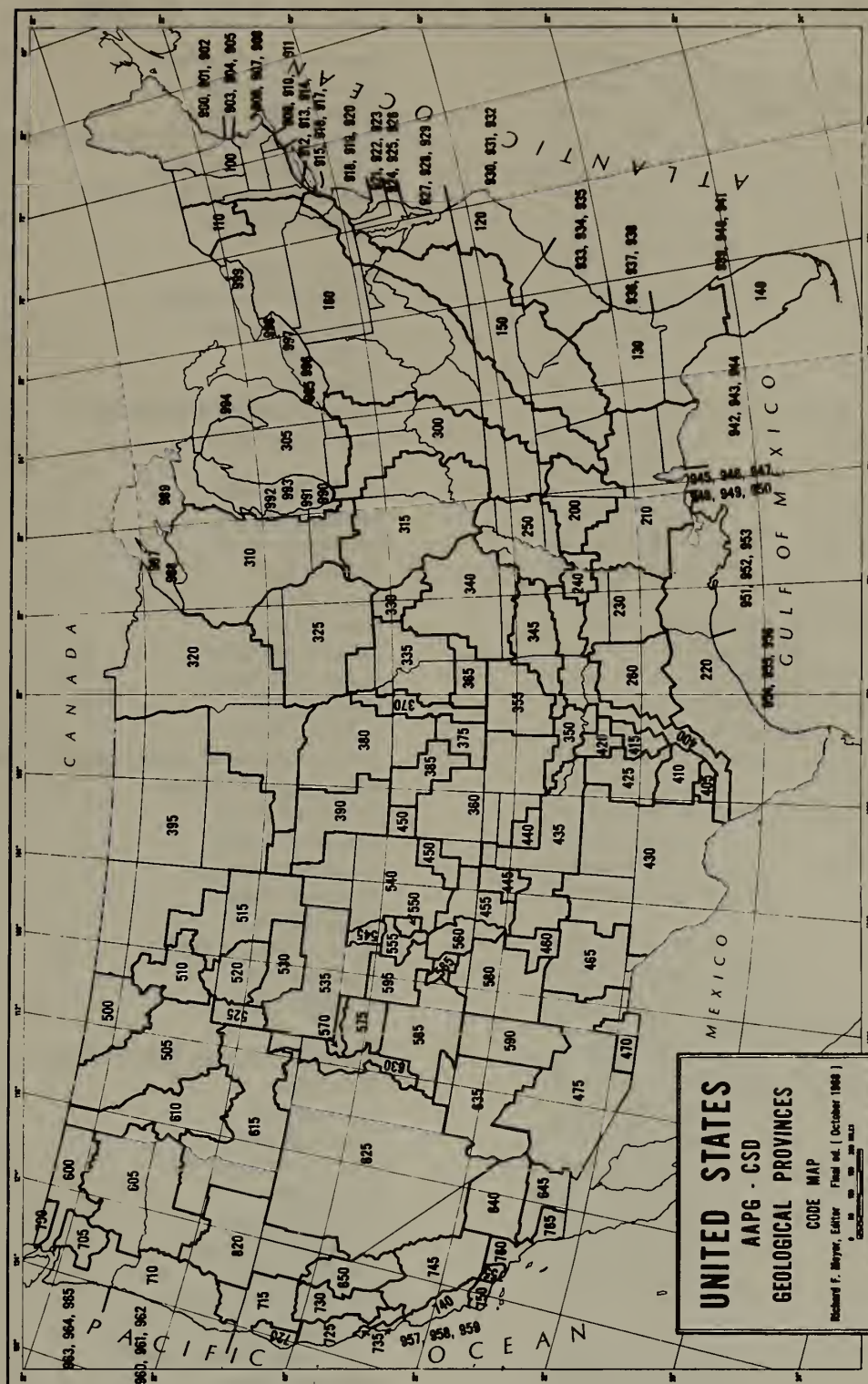


Figure 1.-Geologic provinces of the United States.

<u>Code</u>	<u>Province</u>
100	New England Province
110	Adirondack Uplift
120	Atlantic Coast Basin
130	South Georgia-North Florida Sedimentary Province
140	South Florida Province
150	Piedmont-Blue Ridge Province
160	Appalachian Basin
200	Warrior Basin
210	Mid-Gulf Coast Basin
220	Gulf Coast Basin
230	Arkla Basin
240	Desha Basin
250	Upper Mississippi Embayment
260	East Texas Basin
300	Cincinnati Arch
305	Michigan Basin
310	Wisconsin Arch
315	Illinois Basin
320	Sioux Uplift
325	Iowa Shelf
330	Lincoln Anticline
335	Forest City Basin
340	Ozark Uplift
345	Arkoma Basin
350	South Oklahoma Folded Belt Province
355	Chautauqua Platform
360	Anadarko Basin
365	Cherokee Basin
370	Nemaha Anticline
375	Sedgwick Basin
380	Salina Basin
385	Central Kansas Uplift
390	Chadron Arch
395	Williston Basin
400	Ouachita Tectonic Belt Province
405	Kerr Basin
410	Llano Uplift
415	Strawn Basin
420	Fort Worth Syncline
425	Bend Arch
430	Permian Basin
435	Palo Duro Basin
440	Amarillo Arch
445	Sierra Grande Uplift
450	Las Animas Arch
455	Las Vegas-Raton Basin
460	Estancia Basin
465	Orogrande Basin
470	Pedregosa Basin
475	Basin-and-Range Province

<u>Code</u>	<u>Province</u>
500	Sweetgrass Arch
505	Montana Folded Belt Province
510	Central Montana Uplift
515	Powder River Basin
520	Big Horn Basin
525	Yellowstone Province
530	Wind River Basin
535	Green River Basin
540	Denver Basin
545	North Park Basin
550	South Park Basin
555	Eagle Basin
560	San Luis Basin
565	San Juan Mountain Province
570	Uinta Uplift
575	Uinta Basin
580	San Juan Basin
585	Paradox Basin
590	Black Mesa Basin
595	Piceance Basin
600	Northern Cascade Range—Okanagan Province
605	Eastern Columbia Basin
610	Idaho Mountains Province
615	SNAKE RIVER BASIN
620	Southern Oregon Basin
625	Great Basin Province
630	Wasatch Uplift
635	Plateau Sedimentary Province
640	Mojave Basin
645	Salton Basin
650	Sierra Nevada Province
700	Bellingham Basin
705	Puget Sound Province
710	Western Columbia Basin
715	Klamath Mountains Province
720	Eel River Basin
725	Northern Coast Range Province
730	Sacramento Basin
735	Santa Cruz Basin
740	Coastal Basins
745	San Joaquin Basin
750	Santa Maria Basin
755	Ventura Basin
760	Los Angeles Basin
765	Capistrano Basin
800	Heceta Island Area
805	Keku Islands Area
810	Gulf of Alaska Basin
815	Copper River Basin
820	Cook Inlet Basin

<u>Code</u>	<u>Province</u>
830	Kandik Province
835	Kobuk Province
840	Koyukuk Province
845	Bristol Bay Basin
850	Bethel Basin
855	Norton Basin
860	Selawik Basin
863	Yukon Flats Basin
865	Lower Tanana Basin
867	Middle Tanana Basin
870	Upper Tanana Basin
873	Galena Basin
875	Innoko Basin
877	Minchumina Basin
880	Holitna Basin
885	Arctic Foothills Province
890	Arctic Slope Basin
900	Maine Atlantic offshore-general
901	Maine Atlantic offshore-State
902	Maine Atlantic offshore-Federal
903	New Hampshire Atlantic offshore-general
904	New Hampshire Atlantic offshore-State
905	New Hampshire Atlantic offshore-Federal
906	Massachusetts Atlantic offshore-general
907	Massachusetts Atlantic offshore-State
908	Massachusetts Atlantic offshore-Federal
909	Rhode Island Atlantic offshore-general
910	Rhode Island Atlantic offshore-State
911	Rhode Island Atlantic offshore-Federal
912	Connecticut Atlantic offshore-general
913	Connecticut Atlantic offshore-State
914	Connecticut Atlantic offshore-Federal
915	New York Atlantic offshore-general
916	New York Atlantic offshore-State
917	New York Atlantic offshore-Federal
918	New Jersey Atlantic offshore-general
919	New Jersey Atlantic offshore-State
920	New Jersey Atlantic offshore-Federal
921	Delaware Atlantic offshore-general
922	Delaware Atlantic offshore-State
923	Delaware Atlantic offshore-Federal
924	Maryland Atlantic offshore-general
925	Maryland Atlantic offshore-State
926	Maryland Atlantic offshore-Federal
927	Virginia Atlantic offshore-general
928	Virginia Atlantic offshore-State
929	Virginia Atlantic offshore-Federal
930	North Carolina Atlantic offshore-general
931	North Carolina Atlantic offshore-State
932	North Carolina Atlantic offshore-Federal
933	South Carolina Atlantic offshore-general
934	South Carolina Atlantic offshore-State

CodeProvince

935	South Carolina Atlantic offshore—Federal
936	Georgia Atlantic offshore—general
937	Georgia Atlantic offshore—State
938	Georgia Atlantic offshore—Federal
939	Florida Atlantic offshore—general
940	Florida Atlantic offshore—State
941	Florida Atlantic offshore—Federal
942	Florida Gulf of Mexico offshore—general
943	Florida Gulf of Mexico offshore—State
944	Florida Gulf of Mexico offshore—Federal
945	Alabama Gulf of Mexico offshore—general
946	Alabama Gulf of Mexico offshore—State
947	Alabama Gulf of Mexico offshore—Federal
948	Mississippi Gulf of Mexico offshore—general
949	Mississippi Gulf of Mexico offshore—State
950	Mississippi Gulf of Mexico offshore—Federal
951	Louisiana Gulf of Mexico offshore—general
952	Louisiana Gulf of Mexico offshore—State
953	Louisiana Gulf of Mexico offshore—Federal
954	Texas Gulf of Mexico offshore—general
955	Texas Gulf of Mexico offshore—State
956	Texas Gulf of Mexico offshore—Federal
957	California Pacific offshore—general
958	California Pacific offshore—State
959	California Pacific offshore—Federal
960	Oregon Pacific offshore—general
961	Oregon Pacific offshore—State
962	Oregon Pacific offshore—Federal
963	Washington Pacific offshore—general
964	Washington Pacific offshore—State
965	Washington Pacific offshore—Federal
972	Alaska Arctic offshore—general
973	Alaska Arctic offshore—State
974	Alaska Arctic offshore—Federal
975	Alaska Bering Sea offshore—general
976	Alaska Bering Sea offshore—State
977	Alaska Bering Sea offshore—Federal
978	Alaska Pacific offshore—general
979	Alaska Pacific offshore—State
980	Alaska Pacific offshore—Federal
987	Minnesota Lake Superior offshore
988	Wisconsin Lake Superior offshore
989	Michigan Lake Superior offshore
990	Indiana Lake Michigan offshore
991	Illinois Lake Michigan offshore
992	Wisconsin Lake Michigan offshore
993	Michigan Lake Michigan offshore
994	Michigan Lake Huron offshore
995	Michigan Lake Erie offshore
996	Ohio Lake Erie offshore
997	Pennsylvania Lake Erie offshore
998	New York Lake Erie offshore
999	New York Lake Ontario offshore

TABLES

The following tables include the results of analyses and related source data from the gas samples, which are divided into three groups as follows:

Table 1.—Samples from gas and oil wells in the United States.

Table 2.—Samples from pipelines in the United States.

Table 3.—Samples from gas and oil wells in foreign countries.

The following list indicates the sources of the samples listed in the tables:

Source	Number of samples	Tables	Source	Number of samples	Tables
Alabama	1	1	New York	1	1
Arkansas	15	1	North Dakota . . .	1	1
California	1	1	Oklahoma	35	1
Colorado	7	1, 2	Pennsylvania	1	1
Indiana	1	1	Texas	39	1
Kansas	6	1	Utah	1	2
Kentucky	3	1	Virginia	2	1
Louisiana	17	1, 2	West Virginia . . .	7	1
Michigan	3	1	Wyoming	8	1
Mississippi	4	1			
Montana	1	1	Spain	1	3
New Mexico	10	1, 2			

All components of the analyses in the tables are reported to the nearest 0.1 percent, except helium, which is reported to the nearest 0.01 percent. The word "trace" is used to denote quantities of helium of less than 0.005 percent and quantities of other components of less than 0.05 percent.

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18591	INDEX SAMPLE 18667	INDEX SAMPLE 18672
STATE.....	ALABAMA	ARKANSAS	ARKANSAS
COUNTY.....	MOBILE	CRAWFORD	CRAWFORD
FIELD.....	MARY ANN	HOLLIS LAKE	HOLLIS LAKE
WELL NAME.....	STATE LEASE 348 NO. 2	BOHANNON NO. 1	STAR GRIEG NO. 2
LOCATION.....	TRACT 77, MOBILE BAY	SEC. 5, T8N, R31W	SEC. 13, T9N, R31W
OWNER.....	MOBIL OIL CORP.	KAISER-FRANCIS OIL CO.	TEXACO INC.
COMPLETED.....	03/26/88	06/03/88	03/29/88
SAMPLED.....	05/04/88	08/30/88	09/19/88
FORMATION.....	JURA-NORPHLET	PENN-DUNN A & C	PENN-HALE U
GEOLOGIC PROVINCE CODE...	210	345	345
DEPTH, FEET.....	21450	4911	5440
WELLHEAD PRESSURE, PSIG...	8100	973	510
OPEN FLOW, MCFD.....	50000	7929	880
COMPONENT, MOLE PCT			
METHANE.....	86.7	95.3	97.6
ETHANE.....	2.7	1.1	0.9
PROPANE.....	0.4	0.1	0.1
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	0.1	0.0	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	TRACE	0.1	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.7	2.3	0.6
OXYGEN.....	0.0	TRACE	0.1
ARGON.....	TRACE	TRACE	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	5.9	0.0	TRACE
CARBON DIOXIDE.....	3.4	0.9	0.8
HELIUM.....	0.02	0.08	0.06
HEATING VALUE.....	978	993	1006
SPECIFIC GRAVITY.....	0.647	0.582	0.570

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 4 18588	INDEX SAMPLE 5 18589	INDEX SAMPLE 6 18631
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	CRAWFORD	CRAWFORD	CRAWFORD
FIELD.....	KIBLER WILLIAMS	KIBLER WILLIAMS	KIBLER-WILLIAMS
WELL NAME.....	BYARS NO. 3-15-T	BYARS NO. 3-15-C	SHERER NO. 1
LOCATION.....	SEC. 15, T9N, R30W	SEC. 15, T9N, R30W	SEC. 2, T9N, R30W
OWNER.....	ESCO EXPLORATION, INC.	ESCO EXPLORATION, INC.	REVERE CORP.
COMPLETED.....	12/06/87	12/06/87	12/27/87
SAMPLED.....	04/27/88	04/27/88	07/07/88
FORMATION.....	PENN-CASEY	PENN-TACKETT	PENN-CARPENTER
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	5119	3370	2595
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	NOT GIVEN	106
OPEN FLOW, MCFD.....	1134	1172	1240
COMPONENT, MOLE PCT			
METHANE.....	96.8	96.7	97.5
ETHANE.....	1.6	1.6	0.9
PROPANE.....	0.2	0.2	0.1
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	TRACE	TRACE	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.4	0.6	0.5
OXYGEN.....	0.1	0.1	0.1
ARGON.....	TRACE	TRACE	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.8	0.7	0.8
HELIUM.....	0.07	0.07	0.11
HEATING VALUE*.....	1016	1015	1007
SPECIFIC GRAVITY.....	0.574	0.575	0.570

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. -- SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18495	INDEX SAMPLE 18661	INDEX SAMPLE 18519
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	FRANKLIN	FRANKLIN	JOHNSON
FIELD.....	AETNA	SPADRA	SCRANTON
WELL NAME.....	WIEDERKEHR-SWIFT NO. 1-32	RAGON NO. 2	THOMPSON NO. 3-26
LOCATION.....	SEC. 32, T9N, R26W	SEC. 33, T9N, R23W	SEC. 26, T9N, R25W
OWNER.....	SEECO, INC.	ARKOMA PRODUCTION CO.	SEECO, INC.
COMPLETED.....	07/29/87	05/02/88	09/08/87
SAMPLED.....	12/04/87	08/17/88	02/17/88
FORMATION.....	ORDO-JENKINS	PENN-ARECI	ORDO-JENKINS
GEOLOGIC PROVINCE CODE.....	345	345	345
DEPTH, FEET.....	4878	4883	6000
WELLHEAD PRESSURE, PSIG.....	438	120	1205
OPEN FLOW, MCFD.....	5477	1300	3118
COMPONENT, MOLE PCT			
METHANE.....	97.6	97.5	97.1
ETHANE.....	1.3	1.1	0.7
PROPANE.....	0.2	0.1	0.1
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	TRACE	TRACE	0.0
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.1	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.3	0.5	0.3
OXYGEN.....	0.0	0.1	TRACE
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.1
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.5	1.4
HELIUM.....	0.05	0.12	0.17
HEATING VALUE*.....	1018	1016	1000
SPECIFIC GRAVITY.....	0.569	0.570	0.573

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 10 18663	INDEX SAMPLE 11 18506	INDEX SAMPLE 12 18530
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	JOHNSON	LOGAN	LOGAN
FIELD.....	SPADRA	AETNA	BOONEVILLE
WELL NAME.....	VOLA NO. 3-15	FARM LANDS, INC. NO. 1	METCALF "A" NO. 2
LOCATION.....	SEC. 15, T9N, R23W	SEC. 27, T8N, R26W	SEC. 1, T6N, R28W
OWNER.....	CHEVRON U.S.A., INC.	SAMSON RESOURCES CO.	TXO PRODUCTION CORP.
COMPLETED.....	03/01/88	04/15/85	12/29/87
SAMPLED.....	08/25/88	12/01/87	03/07/88
FORMATION.....	PENN-ALLEN	PENN-CARPENTER U & L	PERM-BASHAM
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	6188	6300	4089
WELLHEAD PRESSURE, PSIG...	1177	901	2255
OPEN FLOW, MCFD.....	5436	3445	1260
COMPONENT, MOLE PCT			
METHANE.....	96.2	97.1	95.5
ETHANE.....	1.3	1.1	1.6
PROPANE.....	0.2	0.1	0.2
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	TRACE	0.0	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.1	TRACE	TRACE
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.5	0.4	2.3
OXYGEN.....	0.1	0.1	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.1	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	1.6	1.0	0.2
HELIUM.....	0.09	0.12	0.04
HEATING VALUE*.....	1004	1008	1005
SPECIFIC GRAVITY.....	0.581	0.573	0.577

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 13 18610	INDEX SAMPLE 14 18692	INDEX SAMPLE 15 18682
STATE.....	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY.....	LOGAN	POPE	SEBASTIAN
FIELD.....	PARIS	MORELAND	BONANZA
WELL NAME.....	RIVER BOTTOM NO. 1-T	CAMMIE VIRDEN NO. 9-3	NEWTON "C" NO. 1
LOCATION.....	SEC. 4, T8N, R25W	SEC. 9, T8N, R19W	SEC. 24, T6N, R32W
OWNER.....	TXO PRODUCTION CORP.	TEXACO INC.	TXO PRODUCTION CORP.
COMPLETED.....	04/15/88	05/28/88	08/03/88
SAMPLED.....	06/08/88	11/16/88	10/11/88
FORMATION.....	PENN-CARPENTER L	PENN-BARTON	PENN-TURNER
GEOLOGIC PROVINCE CODE...	345	345	345
DEPTH, FEET.....	6533	3180	6830
WELLHEAD PRESSURE, PSIG...	1050	1200	1120
OPEN FLOW, MCFD.....	1320	680	1150
COMPONENT, MOLE PCT			
METHANE.....	95.6	97.8	87.2
ETHANE.....	0.9	1.0	1.3
PROPANE.....	0.1	0.1	0.2
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	TRACE	0.0	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	TRACE	0.0	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.1	0.0
NITROGEN.....	2.1	0.5	10.1
OXYGEN.....	0.0	0.0	0.1
ARGON.....	0.0	TRACE	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	TRACE	0.0
CARBON DIOXIDE.....	1.1	0.2	1.1
HELIUM.....	0.13	0.11	0.06
HEATING VALUE*.....	989	1019	912
SPECIFIC GRAVITY.....	0.580	0.568	0.615

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18498	INDEX SAMPLE 18499	INDEX SAMPLE 18587
STATE.....	ARKANSAS	CALIFORNIA	COLORADO
COUNTY.....	SEBASTIAN	SOLANO	ADAMS
FIELD.....	CECIL	MAINE PRAIRIE	KATIE
WELL NAME.....	C. WRIGHT NO. 2-B	ZANETTI NO. 1	UPRR-COMPTON NO. 34-27
LOCATION.....	SEC. 36, T9N, R30W	SEC. 23, T6N, R2E	SEC. 27, T2S, R63W
OWNER.....	ARKOMA PRODUCTION CO.	AMERADA HESS CORP.	ORM EXPLORATION CO.
COMPLETED.....	09/04/87	08/25/87	03/20/87
SAMPLED.....	12/10/87	12/14/87	04/28/88
FORMATION.....	PENN-CARPENTER	PERM-MOKELUMNE	CRET-DAKOTA J
GEOLOGIC PROVINCE CODE...	345	730	540
DEPTH, FEET.....	1660	5333	7582
WELLHEAD PRESSURE, PSIG...	150	1600	340
OPEN FLOW, MCFD.....	1400	1200	1500
COMPONENT, MOLE PCT			
METHANE.....	98.2	94.2	69.7
ETHANE.....	1.1	3.0	15.2
PROPANE.....	0.1	0.2	8.4
N-BUTANE.....	0.0	0.0	1.8
ISOBUTANE.....	0.0	0.1	0.8
N-PENTANE.....	0.0	0.0	0.4
ISOPENTANE.....	0.0	TRACE	0.3
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.4	2.5	1.5
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	TRACE
HYDROGEN.....	TRACE	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	TRACE	0.1	2.0
HELIUM.....	0.09	TRACE	0.02
HEATING VALUE*.....	1018	1017	1314
SPECIFIC GRAVITY.....	0.563	0.584	0.792

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 19 18561	INDEX SAMPLE 20 18684	INDEX SAMPLE 21 18563
STATE.....	COLORADO	COLORADO	COLORADO
COUNTY.....	KIOWA	KIT CARSON	LA PLATA
FIELD.....	NEE NOSHE	LOOKOUT	IGNACIO-BLANCO
WELL NAME.....	STATE OF COLORADO NO. 1-28	KIRSCHNER CHAMPLIN HICKS	RED MESA NO. 3
LOCATION.....	SEC. 28, T19S, R47W	SEC. 21	SEC. 28, T33N, R11W
OWNER.....	GIBSON, J. W.	NITROTEC ENGINEERING CO.	MERIDIAN OIL, INC.
COMPLETED.....	11/06/87	--/--/88	10/14/81
SAMPLED.....	03/23/88	11/01/88	03/25/88
FORMATION.....	PENN-MORROW	PENN-MORROW	CRET-MESAVERDE
GEOLOGIC PROVINCE CODE...	450	540	580
DEPTH, FEET.....	4751	NOT GIVEN	4194
WELLHEAD PRESSURE, PSIG...	825	800	445
OPEN FLOW, MCFD.....	3400	2000	1334
COMPONENT, MOLE PCT			
METHANE.....	70.6	20.4	85.4
ETHANE.....	10.2	1.4	7.6
PROPANE.....	4.8	1.5	3.4
N-BUTANE.....	0.9	0.5	0.8
ISOBUTANE.....	0.6	0.8	0.6
N-PENTANE.....	0.2	0.0	0.4
ISOPENTANE.....	0.3	0.0	0.2
CYCLOPENTANE.....	0.0	0.1	0.1
HEXANES PLUS.....	0.1	0.2	0.2
NITROGEN.....	11.3	70.0	0.3
OXYGEN.....	0.2	TRACE	0.0
ARGON.....	0.0	0.2	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.5	1.1
HELIUM.....	0.33	4.36	TRACE
HEATING VALUE*.....	1101	328	1175
SPECIFIC GRAVITY.....	0.739	0.880	0.677

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18523	INDEX SAMPLE 18615	INDEX SAMPLE 18647
STATE.....	COLORADO	COLORADO	INDIANA
COUNTY.....	RIO BLANCO	WELD	DUBOIS
FIELD.....	CATHEDRAL	HAMBERT	WILDCAT
WELL NAME.....	FEDERAL NO. 0-31-3-101-S	SEGAL NO. 12-24C	ZEHR NO. 1-P
LOCATION.....	SEC. 31, T3S, R101W	SEC. 24, T4N, R66W	SEC. 1, T1S, R4W
OWNER.....	FUEL RESOURCES DEVELOPMENT C	MACHI-ROSS PETROLEUM CO.	PAWNEE OIL CORP.
COMPLETED.....	09/27/86	11/23/87	02/25/87
SAMPLED.....	02/24/88	06/16/88	06/20/88
FORMATION.....	CRET-CASTLEGATE	CRET-CODELL-NIOBRARA	DEVO-VERNON M
GEOLOGIC PROVINCE CODE...	595	540	315
DEPTH, FEET.....	1732	6930	1600
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	1500	710
OPEN FLOW, MCFD.....	1400	100	740
COMPONENT, MOLE PCT			
METHANE.....	79.9	75.9	74.6
ETHANE.....	5.7	11.6	3.2
PROPANE.....	3.1	5.5	1.7
N-BUTANE.....	0.9	0.0	0.5
ISOBUTANE.....	0.5	2.5	0.3
N-PENTANE.....	0.3	1.1	0.1
ISOPENTANE.....	0.2	0.0	0.2
CYCLOPENTANE.....	0.1	0.1	0.0
HEXANES PLUS.....	0.2	0.3	0.0
NITROGEN.....	8.3	0.8	17.7
OXYGEN.....	0.1	0.1	0.9
ARGON.....	0.1	0.0	0.0
HYDROGEN.....	0.1	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	2.2	0.4
HELIUM.....	0.33	0.01	0.28
HEATING VALUE*.....	1070	1265	901
SPECIFIC GRAVITY.....	0.686	0.758	0.688

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18614	INDEX SAMPLE 18518	INDEX SAMPLE 18613
STATE.....	KANSAS	KANSAS	KANSAS
COUNTY.....	BARBER	CLARK	CLARK
FIELD.....	AETNA GAS AREA	COLOR	HARPER N
WELL NAME.....	BAIER NO. 1	GARDINER 21 NO. 1	EDMONSTON NO. 4-3A
LOCATION.....	SEC. 31, T33S, R13W	SEC. 21, T34S, R24W	SEC. 3, T33N, R22E
OWNER.....	TXO PRODUCTION CORP.	COBRA OIL & GAS CORP.	QUINTANA PETROLEUM CORP.
COMPLETED.....	01/03/88	10/20/85	01/10/87
SAMPLED.....	06/13/88	02/05/88	06/08/88
FORMATION.....	MISS---	MISS-CHESTER	PENN-MORROW
GEOLOGIC PROVINCE CODE...	375	360	360
DEPTH, FEET.....	4790	5526	5264
WELLHEAD PRESSURE, PSIG...	1540	1700	900
OPEN FLOW, MCFD.....	4400	479	440
COMPONENT, MOLE PCT			
METHANE.....	80.0	87.3	88.5
ETHANE.....	5.5	5.4	4.9
PROPANE.....	2.5	2.9	2.5
N-BUTANE.....	0.7	0.6	0.6
ISOBUTANE.....	0.0	0.5	0.5
N-PENTANE.....	0.5	TRACE	0.1
ISOPENTANE.....	0.3	0.5	0.3
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.1
NITROGEN.....	4.1	2.5	2.4
OXYGEN.....	0.1	TRACE	0.0
ARGON.....	0.0	TRACE	0.0
HYDROGEN.....	0.0	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	6.1	0.2	0.1
HELIUM.....	0.18	0.13	0.12
HEATING VALUE*.....	1034	1114	1107
SPECIFIC GRAVITY.....	0.709	0.648	0.640

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18651	INDEX SAMPLE 18690	INDEX SAMPLE 18664
STATE.....	KANSAS	KANSAS	KANSAS
COUNTY.....	MORTON	MORTON	PAWNEE
FIELD.....	BEAUCHAMP SW	NOT GIVEN	MASSEY
WELL NAME.....	ORMISTON NO. 2-9	BREEDING NO. 1-22	PENKA NO. 3-35
LOCATION.....	SEC. 9, T31S, R41W	SEC. 17, T33S, R42W	SEC. 35, T23S, R17W
OWNER.....	MIDWESTERN EXPLORATION CO.	WOLVERINE EXPLORATION CO.	HOLL, F. G. CO.
COMPLETED.....	--/--/87	07/28/88	06/08/88
SAMPLED.....	07/29/88	11/15/88	08/26/88
FORMATION.....	PENN-MORROW	PENN-MORROW	PENN-CHEROKEE
GEOLOGIC PROVINCE CODE...	360	360	385
DEPTH, FEET.....	5330	4898	4244
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	924	1000
OPEN FLOW, MCFD.....	5500	2681	7445
COMPONENT, MOLE PCT			
METHANE.....	81.0	88.0	85.7
ETHANE.....	3.4	3.4	3.5
PROPANE.....	2.0	1.6	1.3
N-BUTANE.....	0.8	0.6	0.4
ISOBUTANE.....	0.6	TRACE	0.1
N-PENTANE.....	0.6	0.5	0.2
ISOPENTANE.....	0.0	0.0	0.2
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.5	0.2	0.0
NITROGEN.....	9.8	4.8	7.6
OXYGEN.....	TRACE	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	0.2	0.2
HELIUM.....	0.94	0.62	0.76
HEATING VALUE*.....	1039	1050	999
SPECIFIC GRAVITY.....	0.679	0.631	0.630

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 31 18636	INDEX SAMPLE 32 18592	INDEX SAMPLE 33 18593
STATE.....	KENTUCKY	KENTUCKY	KENTUCKY
COUNTY.....	PIKE	ROCKCASTLE	ROCKCASTLE
FIELD.....	BIG SANDY	NOT GIVEN	NOT GIVEN
WELL NAME.....	POCAHONTAS NO. 1	LIVESAY NO. 1	LIVESAY NO. 1
LOCATION.....	ROAD FORK, BIG CREEK, VARNEY	CARTER COORDINATE 18-K-62	CARTER COORDINATE 18-K-62
OWNER.....	COLUMBIA NATURAL RESOURCES,	HUNT'S NATURAL RESOURCES	HUNT'S NATURAL RESOURCES
COMPLETED.....	12/11/87	--/--/88	--/--/88
SAMPLED.....	07/08/88	05/09/88	05/09/88
FORMATION.....	MISS-MAXON	ORDO-KNOX	ORDO-SUNNYBROOK-BRASSFIELD
GEOLOGIC PROVINCE CODE...	160	160	160
DEPTH, FEET.....	1720	2140	1128
WELLHEAD PRESSURE, PSIG...	618	600	100
OPEN FLOW, MCFD.....	1233	250	38
COMPONENT, MOLE PCT			
METHANE.....	81.9	65.6	66.6
ETHANE.....	9.7	3.9	3.8
PROPANE.....	3.8	1.2	1.2
N-BUTANE.....	0.6	0.3	0.2
ISOBUTANE.....	0.5	0.3	0.4
N-PENTANE.....	0.2	0.0	0.0
ISOPENTANE.....	TRACE	0.2	0.1
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	3.0	27.7	27.0
OXYGEN.....	TRACE	0.0	0.0
ARGON.....	0.0	0.1	0.1
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	TRACE	0.1	TRACE
HELIUM.....	0.19	0.60	0.60
HEATING VALUE*.....	1148	796	801
SPECIFIC GRAVITY.....	0.673	0.713	0.707

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18503	INDEX SAMPLE 18566	INDEX SAMPLE 18627
STATE.....	LOUISIANA	LOUISIANA	LOUISIANA
PARISH.....	CALCASIEU	JACKSON	NATCHITOCHES
FIELD.....	PINE RIDGE	CHATHAM	OAK GROVE CHURCH
WELL NAME.....	W. B. LAWTON NO. 1	CROWN ZELLERBACH NO. 7-1	BODCAW MINERALS NO. 1
LOCATION.....	SEC. 26, T10S, R11W	SEC. 7, T15N, R1E	SEC. 8, T13N, R6W
OWNER.....	PELTO OIL CO.	LYONS, HILLIARD & WATSON, IN	COBRA OIL & GAS CORP.
COMPLETED.....	06/19/87	--/--/86	09/18/87
SAMPLED.....	12/17/87	03/28/88	07/06/88
FORMATION.....	OLIG-HACKBERRY L	CRET-JAMES LIME	CRET-RODESSA
GEOLOGIC PROVINCE CODE...	220	230	230
DEPTH, FEET.....	11176	6724	6480
WELLHEAD PRESSURE, PSIG...	8082	1250	2800
OPEN FLOW, MCFD.....	2469	2725	3150
COMPONENT, MOLE PCT			
METHANE.....	92.4	87.1	92.3
ETHANE.....	3.6	1.4	1.0
PROPANE.....	1.3	0.6	0.5
N-BUTANE.....	0.4	0.3	0.2
ISOBUTANE.....	0.1	0.1	0.3
N-PENTANE.....	0.3	0.5	0.0
ISOPENTANE.....	0.0	0.0	0.2
CYCLOPENTANE.....	TRACE	0.1	0.0
HEXANES PLUS.....	0.1	0.2	0.0
NITROGEN.....	0.6	6.9	3.0
OXYGEN.....	0.1	0.1	TRACE
ARGON.....	TRACE	TRACE	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.9	2.7	2.5
HELIUM.....	0.01	0.08	0.04
HEATING VALUE#.....	1069	968	989
SPECIFIC GRAVITY.....	0.612	0.643	0.612

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18508	INDEX SAMPLE 18494	INDEX SAMPLE 18598
STATE.....	MICHIGAN	MICHIGAN	MICHIGAN
COUNTY.....	MECOSTA	OAKLAND	OGEMAW
FIELD.....	ROGERS POND	LYON S	WEST BRANCH
WELL NAME.....	ALBER NO. 1-23	RANDALL NO. 1-29	TROUT NO. 3-18
LOCATION.....	SEC. 23, T14N, R10W	SEC. 29, T1N, R7E	SEC. 18, T22N, R2E
OWNER.....	SHELL WESTERN EXP. & PROD.,	SOMOCO, INC.	MARATHON OIL CO.
COMPLETED.....	06/27/87	03/07/86	11/06/87
SAMPLED.....	12/29/87	12/07/87	05/24/88
FORMATION.....	ORDO-PAIRIE DU CHIEN	SILU-NIAGARAN	ORDO-PAIRIE DU CHIEN
GEOLOGIC PROVINCE CODE...	305	305	305
DEPTH, FEET.....	8389	3577	10000
WELLHEAD PRESSURE, PSIG...	3300	NOT GIVEN	3500
OPEN FLOW, MCFD.....	26200	1000	2500
COMPONENT, MOLE PCT			
METHANE.....	80.9	79.6	84.6
ETHANE.....	3.8	7.8	7.7
PROPANE.....	0.6	2.8	2.4
N-BUTANE.....	0.1	0.5	1.8
ISOBUTANE.....	0.2	0.9	0.2
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.1	0.2	1.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.1
NITROGEN.....	14.0	7.9	1.8
OXYGEN.....	0.0	0.0	0.1
ARGON.....	TRACE	TRACE	0.0
HYDROGEN.....	0.1	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.1	0.1	0.3
HELIUM.....	0.05	0.11	0.03
HEATING VALUE*.....	919	1075	1173
SPECIFIC GRAVITY.....	0.644	0.680	0.680

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 40 18687	INDEX SAMPLE 41 18567	INDEX SAMPLE 42 18697
STATE.....	MISSISSIPPI	MISSISSIPPI	MISSISSIPPI
COUNTY.....	JONES	LEE	WARREN
FIELD.....	GITANO	PALMETTO S	OAK RIDGE
WELL NAME.....	WADE NO. 1	TUCKER NO. 9-13	ANDERSON TULLY 28-7 NO. 2
LOCATION.....	SEC. 9, T9N, R13W	SEC. 9, T11S, R5E	SEC. 28, T17N, R5E
OWNER.....	GOLDSBERRY OPERATING CO.	MOON-HINES-TIGRETT OPERATING	MURPHY OIL U.S.A., INC.
COMPLETED.....	11/23/85	--/--/87	02/01/83
SAMPLED.....	11/10/88	04/--/88	11/28/88
FORMATION.....	CRET-EUTAW-STANLEY SAND	CRET-LEWIS	JURA-COTTON VALLEY
GEOLOGIC PROVINCE CODE...	210	200	210
DEPTH, FEET.....	9746	2262	16500
WELLHEAD PRESSURE, PSIG...	50	936	2300
OPEN FLOW, MCFD.....	1000	1387	1800
COMPONENT, MOLE PCT			
METHANE.....	96.7	97.7	81.9
ETHANE.....	0.3	1.0	2.1
PROPANE.....	0.0	TRACE	1.2
N-BUTANE.....	0.4	0.0	0.6
ISOBUTANE.....	0.0	0.0	0.8
N-PENTANE.....	0.0	0.0	0.3
ISOPENTANE.....	0.4	0.0	0.2
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.3
NITROGEN.....	1.6	1.1	4.1
OXYGEN.....	TRACE	0.0	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.1	8.3
HELIUM.....	0.03	0.07	0.04
HEATING VALUE*.....	1015	1009	985
SPECIFIC GRAVITY.....	0.581	0.565	0.714

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 43 18520	INDEX SAMPLE 44 18496	INDEX SAMPLE 45 18594
STATE.....	MISSISSIPPI	MONTANA	NEW MEXICO
COUNTY.....	WILKINSON	BLAINE	CHAVES
FIELD.....	NEWTONIA	SAWTOOTH MOUNTAIN	BITTER LAKES
WELL NAME.....	COON HEIRS NO. 1	CAMPBELL NO. 9-4	J. R. STATE NO. 1
LOCATION.....	SEC. 27, T2N, R1W	SEC. 4, T27N, R19E	SEC. 32, T8S, R27E
OWNER.....	SABINE CORP.	MONTANA POWER CO.	ELK OIL CO.
COMPLETED.....	--/--/87	07/23/86	12/03/87
SAMPLED.....	02/20/88	12/09/87	05/18/88
FORMATION.....	CRET-TUSCALOOSA	CRET-EAGLE	PENN---
GEOLOGIC PROVINCE CODE...	210	395	430
DEPTH, FEET.....	12391	1512	6341
WELLHEAD PRESSURE, PSIG...	2000	410	1860
OPEN FLOW, MCFD.....	500	1000	1452
COMPONENT, MOLE PCT			
METHANE.....	83.8	85.0	90.1
ETHANE.....	5.9	2.8	3.9
PROPANE.....	2.4	1.5	1.2
N-BUTANE.....	0.6	0.3	0.3
ISOBUTANE.....	0.6	0.5	0.4
N-PENTANE.....	0.3	0.0	0.0
ISOPENTANE.....	0.3	0.1	0.2
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.3	0.0	0.0
NITROGEN.....	1.0	9.6	3.4
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	TRACE	TRACE
HYDROGEN.....	0.1	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	4.4	TRACE	0.3
HELIUM.....	0.01	0.08	0.16
HEATING VALUE*.....	1106	983	1048
SPECIFIC GRAVITY.....	0.695	0.638	0.617

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 46 18639	INDEX SAMPLE 47 18640	INDEX SAMPLE 48 18617
STATE.....	NEW MEXICO	NEW MEXICO	NEW MEXICO
COUNTY.....	CHAVES	CHAVES	EDDY
FIELD.....	PECOS SLOPE	PECOS SLOPE W	RED LAKE
WELL NAME.....	LOOKOUT FEDERAL NO. 5	MILLER FEDERAL NO. 5	SCOGGINS DRAW FED. COM. NO.1
LOCATION.....	SEC. 9, T6S, R22E	SEC. 6, T6S, R23E	SEC. 22, T18S, R27E
OWNER.....	MCKAY OIL CORP.	MCKAY OIL CORP.	SUN EXPLORATION & PRODUCTION
COMPLETED.....	--/--/87	--/--/87	07/30/87
SAMPLED.....	07/11/88	07/11/88	06/11/88
FORMATION.....	PERM-ABO	NOT GIVEN	PENN-ATOKA-MORROW
GEOLOGIC PROVINCE CODE...	430	430	430
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	9732
WELLHEAD PRESSURE, PSIG...	113	112	1950
OPEN FLOW, MCFD.....	35000	85000	28208
COMPONENT, MOLE PCT			
METHANE.....	88.4	88.4	90.6
ETHANE.....	3.1	2.7	5.4
PROPANE.....	1.4	1.2	2.2
N-BUTANE.....	0.5	0.5	0.4
ISOBUTANE.....	0.1	0.2	0.3
N-PENTANE.....	0.3	0.2	0.2
ISOPENTANE.....	TRACE	0.0	TRACE
CYCLOPENTANE.....	0.0	0.0	0.1
HEXANES PLUS.....	0.1	0.2	0.1
NITROGEN.....	5.6	6.2	0.3
OXYGEN.....	TRACE	0.1	TRACE
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	0.2	0.5
HELIUM.....	0.30	0.31	0.02
HEATING VALUE*.....	1028	1013	1109
SPECIFIC GRAVITY.....	0.626	0.624	0.626

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 49 18668	INDEX SAMPLE 50 18633	INDEX SAMPLE 51 18586
STATE.....	NEW MEXICO	NEW MEXICO	NEW MEXICO
COUNTY.....	LEA	LEA	RIO ARRIBA
FIELD.....	OJO CHISO - MORROW	UNDESIGNATED	LINDRITH W
WELL NAME.....	CHISO NO. 1	BRINNINSTOOL "21" FED. NO. 1	JICARILLA F NO. 5A
LOCATION.....	SEC. 14 T22S R34E	SEC. 21, T25S, R33E	SEC. 33, T26N, R4W
OWNER.....	BTA OIL PRODUCERS	ENRON OIL & GAS CO.	UNION TEXAS PETROLEUM CORP.
COMPLETED.....	02/10/88	01/07/88	12/07/87
SAMPLED.....	09/01/88	07/08/88	04/15/88
FORMATION.....	PENN-MORROW	PENN-MORROW D	CRET-MESAVERDE-DAKOTA
³ GEOLOGIC PROVINCE CODE...	000	430	580
DEPTH, FEET.....	12801	15259	5063
WELLHEAD PRESSURE, PSIG...	2612	8400	1204
OPEN FLOW, MCFD.....	2750	2950	3149
COMPONENT, MOLE PCT			
METHANE.....	94.8	97.7	83.1
ETHANE.....	2.9	1.0	10.5
PROPANE.....	0.8	0.1	3.8
N-BUTANE.....	0.2	0.0	0.7
ISOBUTANE.....	0.2	TRACE	0.8
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.2	0.1	0.2
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.5	0.2	0.4
OXYGEN.....	0.1	0.1	0.1
ARGON.....	0.0	0.0	TRACE
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.4	0.8	0.4
HELIUM.....	0.02	0.01	0.03
HEATING VALUE*.....	1052	1015	1188
SPECIFIC GRAVITY.....	0.591	0.572	0.677

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18622	INDEX SAMPLE 18626	INDEX SAMPLE 18659
STATE.....	NEW YORK	NORTH DAKOTA	OKLAHOMA
COUNTY.....	CAYUGA	MCKENZIE	BLAINE
FIELD.....	AUBURN W	SPRING CREEK	OKEENE
WELL NAME.....	E. H. PATTERSON NO. 660-4	SOVIG NO. 44-31	EVA NO. 1-30
LOCATION.....	AURELIUS DIST., CAYUGA QUAD.	SEC. 31, T151N, R100W	SEC. 30, T18N, R10W
OWNER.....	MERIDIAN EXPLORATION CORP.	NATIONAL OIL CO.	BOGERT OIL CO.
COMPLETED.....	--/--/87	12/17/83	02/--/86
SAMPLED.....	06/22/88	06/27/88	08/15/88
FORMATION.....	ORDO-QUEENSTON	ORDO-RED RIVER	PENN-ATOKA-MORROW
GEOLOGIC PROVINCE CODE...	160	395	360
DEPTH, FEET.....	1495	13757	7892
WELLHEAD PRESSURE, PSIG...	580	940	2221
OPEN FLOW, MCFD.....	2860	15000	1122
COMPONENT, MOLE PCT			
METHANE.....	96.8	74.6	92.0
ETHANE.....	1.3	7.6	4.3
PROPANE.....	0.1	2.3	1.8
N-BUTANE.....	0.0	0.8	0.3
ISOBUTANE.....	TRACE	0.6	0.5
N-PENTANE.....	0.0	0.2	0.0
ISOPENTANE.....	0.0	0.3	0.3
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.2	0.0
NITROGEN.....	1.6	0.4	0.4
OXYGEN.....	0.0	0.0	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	12.0	0.0
CARBON DIOXIDE.....	0.1	0.9	0.4
HELIUM.....	0.12	0.03	0.02
HEATING VALUE*.....	1006	1109	1093
SPECIFIC GRAVITY.....	0.569	0.739	0.616

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18500	INDEX SAMPLE 18529	INDEX SAMPLE 18558
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	CADDO	CADDO	CADDO
FIELD.....	EAKLY E	HINTON E	LIBBIE
WELL NAME.....	MCCLAIN NO. 1-4	OAKES NO. 1-10	FLANIGIN NO. 2-A
LOCATION.....	SEC. 4, T9N, R12W	SEC. 10, T11N, R11W	SEC. 31, T12N, R12W
OWNER.....	HELMERICH & PAYNE, INC.	APACHE CORP.	APACHE CORP.
COMPLETED.....	05/28/87	12/08/87	09/17/87
SAMPLED.....	12/--/87	03/02/88	03/21/88
FORMATION.....	PENN-SPRINGER	PENN-MORROW U	PENN-SPRINGER
GEOLOGIC PROVINCE CODE...	360	360	360
DEPTH, FEET.....	15752	12726	14008
WELLHEAD PRESSURE, PSIG...	9280	5924	4096
OPEN FLOW, MCFD.....	1809	8766	17393
COMPONENT, MOLE PCT			
METHANE.....	96.2	92.7	96.7
ETHANE.....	0.6	4.4	1.2
PROPANE.....	0.1	1.1	0.2
N-BUTANE.....	0.0	0.1	0.0
ISOBUTANE.....	0.0	0.2	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.1	TRACE
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	1.0	0.4	0.3
OXYGEN.....	0.2	0.0	0.0
ARGON.....	2.0	TRACE	0.0
HYDROGEN.....	0.0	0.1	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	1.0	1.4
HELIUM.....	0.02	0.02	0.02
HEATING VALUE*.....	988	1057	1010
SPECIFIC GRAVITY.....	0.581	0.602	0.579

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18560	INDEX SAMPLE 18688	INDEX SAMPLE 18671
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	CANADIAN	CUSTER	CUSTER
FIELD.....	UNION CITY	ALEDO SE	HAMMOND E
WELL NAME.....	HENRY JO NO. 3-7	ARNOLD NO. 1	CLIFT NO. 1
LOCATION.....	SEC. 7, T12N, R8W	SEC. 1, T15N, R18W	SEC. 3, T13N, R20W
OWNER.....	SAMEDAN OIL CORP.	ANR PRODUCTION CO.	AN-SON CORP.
COMPLETED.....	12/08/87	01/03/78	05/21/82
SAMPLED.....	03/24/88	11/--/88	08/14/88
FORMATION.....	ORDO-VIOLA	PENN-SPRINGER C	PENN-ATOKA
GEOLOGIC PROVINCE CODE...	360	360	360
DEPTH, FEET.....	12090	12214	13676
WELLHEAD PRESSURE, PSIG...	2300	2000	3000
OPEN FLOW, MCFD.....	1375	1150	1075
COMPONENT, MOLE PCT			
METHANE.....	91.9	84.7	93.1
ETHANE.....	4.6	9.5	2.6
PROPANE.....	1.3	3.6	1.1
N-BUTANE.....	0.2	0.9	0.3
ISOBUTANE.....	0.5	0.3	0.4
N-PENTANE.....	0.0	0.2	0.5
ISOPENTANE.....	0.0	TRACE	0.0
CYCLOPENTANE.....	0.1	0.0	0.1
HEXANES PLUS.....	0.1	0.1	0.5
NITROGEN.....	0.3	0.1	0.2
OXYGEN.....	0.0	0.1	TRACE
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	1.0	0.6	1.2
HELIUM.....	0.02	0.03	0.02
HEATING VALUE*.....	1081	1174	1088
SPECIFIC GRAVITY.....	0.617	0.668	0.623

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 61 18562	INDEX SAMPLE 62 18630	INDEX SAMPLE 63 18675
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	CUSTER	DEWEY	DEWEY
FIELD.....	STAFFORD	CANTON SW	HUCMAC
WELL NAME.....	DERBY NO. 1-13	WILLIE PORTER NO. 1-9	CURTIS NO. 3-19
LOCATION.....	SEC. 13, T12N, R19W	SEC. 9, T17N, R14W	SEC. 19, T18N, R14W
OWNER.....	AN-SON CORP.	LADD PETROLEUM CORP.	LADD PETROLEUM CORP.
COMPLETED.....	10/07/87	10/11/87	08/28/87
SAMPLED.....	03/25/88	06/27/88	09/07/88
FORMATION.....	PENN-RED FORK	DEVO-HUNTON	CAMO-ARBUCKLE
GEOLOGIC PROVINCE CODE...	360	360	360
DEPTH, FEET.....	12824	11490	12454
WELLHEAD PRESSURE, PSIG...	6832	1550	3656
OPEN FLOW, MCFD.....	13573	24418	35459
COMPONENT, MOLE PCT			
METHANE.....	87.6	94.4	95.2
ETHANE.....	6.4	2.3	2.0
PROPANE.....	2.6	0.7	0.6
N-BUTANE.....	0.5	0.2	0.2
ISOBUTANE.....	0.5	0.3	0.2
N-PENTANE.....	0.3	0.0	0.2
ISOPENTANE.....	0.1	0.2	0.0
CYCLOPENTANE.....	TRACE	0.0	0.0
HEXANES PLUS.....	0.2	0.0	0.1
NITROGEN.....	0.4	0.6	1.2
OXYGEN.....	TRACE	TRACE	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	1.4	1.4	0.4
HELIUM.....	0.03	0.02	0.05
HEATING VALUE*.....	1128	1037	1038
SPECIFIC GRAVITY.....	0.654	0.599	0.589

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 64 18650	INDEX SAMPLE 65 18689	INDEX SAMPLE 66 18676
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	GARFIELD	GRANT	HASKELL
FIELD.....	KREMLIN SW	NASH NE	KINTA
WELL NAME.....	CLARA NO. 1-27	TRENTON B UNIT NO. 1	SAPINGTON NO. 2
LOCATION.....	SEC. 27, T24N, R7W	SEC. 17, T26N, R7W	SEC. 22, T7N, R19E
OWNER.....	INTERSTATE OIL & GAS, INC.	MOBIL OIL CORP.	SAMSON RESOURCES CO.
COMPLETED.....	10/03/87	04/06/88	04/--/88
SAMPLED.....	07/29/88	11/11/88	10/04/88
FORMATION.....	MISS-OSWEGO	DEVO-MISENER	PENN-HARTSHORNE
GEOLOGIC PROVINCE CODE.....	360	350	345
DEPTH, FEET.....	5498	5969	2709
WELLHEAD PRESSURE, PSIG.....	610	NOT GIVEN	608
OPEN FLOW, MCFD.....	120	2396	1200
COMPONENT, MOLE PCT			
METHANE.....	89.1	80.3	89.6
ETHANE.....	4.9	5.9	6.9
PROPANE.....	2.3	1.0	2.1
N-BUTANE.....	0.6	4.3	0.3
ISOBUTANE.....	0.3	0.0	0.4
N-PENTANE.....	0.3	0.0	0.0
ISOPENTANE.....	TRACE	3.0	0.2
CYCLOPENTANE.....	0.1	TRACE	0.0
HEXANES PLUS.....	0.2	0.1	0.0
NITROGEN.....	1.8	4.4	0.3
OXYGEN.....	TRACE	0.1	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	0.7	0.2
HELIUM.....	0.10	0.13	0.04
HEATING VALUE*.....	1104	1228	1115
SPECIFIC GRAVITY.....	0.636	0.747	0.626

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18580	INDEX SAMPLE 18607	INDEX SAMPLE 18505
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	HUGHES	HUGHES	LE FLORE
FIELD.....	HILL TOP W	RIVER BEND	CAMERON
WELL NAME.....	MOBIL NO. 1	EDWARDS NO. 1-9	ROLLIN NO. 1
LOCATION.....	SEC. 20, T5N, R11E	SEC. 9, T6N, R10E	SEC. 25, T8N, R26E
OWNER.....	DIAMOND, HARRY H., INC.	QUINTANA PETROLEUM CORP.	SAMSON RESOURCES CO.
COMPLETED.....	09/17/87	02/11/87	06/10/87
SAMPLED.....	04/--/88	04/14/88	12/15/87
FORMATION.....	PENN-HARTSHORNE	PENN-HARTSHORNE	MISS-RED OAK
GEOLOGIC PROVINCE CODE...	355	355	345
DEPTH, FEET.....	3286	3018	5836
WELLHEAD PRESSURE, PSIG...	240	680	695
OPEN FLOW, MCFD.....	1400	990	1350
COMPONENT, MOLE PCT			
METHANE.....	92.1	86.9	96.4
ETHANE.....	3.9	3.6	1.6
PROPANE.....	1.5	2.4	0.2
N-BUTANE.....	0.2	1.4	0.0
ISOBUTANE.....	0.4	0.0	TRACE
N-PENTANE.....	0.0	0.1	0.0
ISOPENTANE.....	0.1	0.8	TRACE
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	1.5	4.4	0.3
OXYGEN.....	0.0	0.0	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.3	0.3	1.3
HELIUM.....	0.11	0.15	0.07
HEATING VALUE*.....	1066	1092	1010
SPECIFIC GRAVITY.....	0.608	0.655	0.578

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18669	INDEX SAMPLE 18572	INDEX SAMPLE 18555
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	LOGAN	MAJOR	MAJOR
FIELD.....	COYLE S	CAMPBELL E	CHEYENNE VALLEY
WELL NAME.....	OKLAHOMA STATE NO. 1-36	BANE "B" NO. 2	KLIEWER "A" NO. 3
LOCATION.....	SEC. 36, T17N, R1E	SEC. 35, T23, R15	SEC. 11, T22N, R13W
OWNER.....	KAISER INVESTMENTS	ANADARKO PETROLEUM CORP.	BHP PETROLEUM (AMERICAS), IN
COMPLETED.....	04/04/88	11/--/87	07/26/87
SAMPLED.....	09/09/88	04/07/88	03/08/88
FORMATION.....	PENN-CLEVELAND	MISS-OSWEGO & CHESTER	MISS-OSAGE
GEOLOGIC PROVINCE CODE...	355	360	360
DEPTH, FEET.....	3800	6148	7102
WELLHEAD PRESSURE, PSIG...	650	2150	850
OPEN FLOW, MCFD.....	100	650	257000
COMPONENT, MOLE PCT			
METHANE.....	70.8	93.6	84.6
ETHANE.....	9.6	3.4	7.4
PROPANE.....	6.8	1.3	3.8
N-BUTANE.....	2.2	0.2	1.3
ISOBUTANE.....	1.0	0.4	0.5
N-PENTANE.....	0.9	0.0	0.4
ISOPENTANE.....	0.1	0.2	0.4
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.4	0.0	0.2
NITROGEN.....	7.9	0.5	1.3
OXYGEN.....	TRACE	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.1	0.3	0.2
HELIUM.....	0.06	0.04	0.04
HEATING VALUE*.....	1241	1073	1189
SPECIFIC GRAVITY.....	0.784	0.602	0.681

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 73 18595	INDEX SAMPLE 74 18565	INDEX SAMPLE 75 18683
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	MCCLAINE	OKLAHOMA	OKMULGEE
FIELD.....	WISHBONE AREA	MIDDLE LUTHER	POLLYANA-TULSA S
WELL NAME.....	CHIEF NO. 1-34	ARTHUR ROOT NO. 2-35	ROOT NO. 1
LOCATION.....	SEC. 34, T10N, R4W	SEC. 35, T14N, R1E	SEC. 9, T15N, R12E
OWNER.....	SANTA FE ENERGY CO.	CHERMAC ENERGY CORP.	SHEPARD, JAMES E.
COMPLETED.....	06/23/87	07/--/87	01/19/82
SAMPLED.....	05/11/88	03/10/88	10/24/88
FORMATION.....	ORDO-WILCOX	PENN-CLEVELAND	PENN-DUTCHER
GEOLOGIC PROVINCE CODE...	355	355	355
DEPTH, FEET.....	9275	4225	2238
WELLHEAD PRESSURE, PSIG...	1850	1675	210
OPEN FLOW, MCFD.....	4000	6000	50000
COMPONENT, MOLE PCT			
METHANE.....	85.8	72.4	68.9
ETHANE.....	6.6	9.3	12.1
PROPANE.....	2.7	8.2	7.6
N-BUTANE.....	0.8	3.8	0.0
ISOBUTANE.....	0.4	1.4	2.2
N-PENTANE.....	0.3	1.8	1.0
ISOPENTANE.....	0.2	0.0	0.0
CYCLOPENTANE.....	0.0	0.5	0.1
HEXANES PLUS.....	0.1	1.3	0.2
NITROGEN.....	2.6	1.1	7.7
OXYGEN.....	0.0	0.0	0.0
ARGON.....	TRACE	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.4	0.0	0.0
HELIUM.....	0.05	0.04	0.15
HEATING VALUE*.....	1126	1454	1246
SPECIFIC GRAVITY.....	0.659	0.843	0.783

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18491	INDEX SAMPLE 18637	INDEX SAMPLE 18490
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	PITTSBURG	PITTSBURG	ROGER MILLS
FIELD.....	BREWER S	MCALESTER	BERLIN NE
WELL NAME.....	PEARL "A" NO. 1	FIELDS NO. 1-26	TAYLOR ESTATE NO. 1-27
LOCATION.....	SEC. 32, T4N, R14E	SEC. 26, T5W, R15E	SEC. 27, T12N, R23W
OWNER.....	TXO PRODUCTION CORP.	MUSTANG PRODUCTION CO.	APACHE CORP.
COMPLETED.....	11/--/84	03/31/88	04/15/87
SAMPLED.....	11/30/87	07/15/88	12/01/87
FORMATION.....	PENN-WAPANUCKA	MISS-RED OAK	PENN-MORROW
GEOLOGIC PROVINCE CODE...	345	345	360
DEPTH, FEET.....	9725	8384	17288
WELLHEAD PRESSURE, PSIG...	2220	520	12224
OPEN FLOW, MCFD.....	2000	3256	22451
COMPONENT, MOLE PCT			
METHANE.....	95.3	95.5	96.9
ETHANE.....	0.4	1.0	0.3
PROPANE.....	TRACE	0.2	TRACE
N-BUTANE.....	0.0	0.0	0.0
ISOBUTANE.....	0.0	TRACE	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.1	0.0	0.1
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	1.1	0.3	0.3
OXYGEN.....	0.1	0.0	0.0
ARGON.....	TRACE	0.0	TRACE
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	TRACE
CARBON DIOXIDE.....	2.9	2.9	2.3
HELIUM.....	0.06	0.06	0.01
HEATING VALUE*.....	978	992	995
SPECIFIC GRAVITY.....	0.592	0.590	0.582

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 79 18569	INDEX SAMPLE 80 18611	INDEX SAMPLE 81 18618
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	ROGER MILLS	ROGER MILLS	ROGER MILLS
FIELD.....	CHEYENNE SE	CHEYENNE W	CHEYENNE W
WELL NAME.....	BOGGS NO. 2-10	FRANCES NO. 1-22	THURMOND NO. 3-26
LOCATION.....	SEC. 10, T12N, R23W	SEC. 22, T13N, R23W	SEC. 26, T13N, R24W
OWNER.....	APACHE CORP.	AN-SON CORP.	APACHE CORP.
COMPLETED.....	12/16/86	09/18/87	01/16/88
SAMPLED.....	04/07/88	06/09/88	06/20/88
FORMATION.....	PENN-MORROW	PENN-CHEROKEE	PENN-CHEROKEE
GEOLOGIC PROVINCE CODE...	360	360	360
DEPTH, FEET.....	16911	13300	13390
WELLHEAD PRESSURE, PSIG...	7154	1862	2660
OPEN FLOW, MCFD.....	3511	3253	1283
COMPONENT, MOLE PCT			
METHANE.....	96.9	94.8	94.4
ETHANE.....	0.3	2.9	2.5
PROPANE.....	TRACE	0.5	0.5
N-BUTANE.....	0.0	0.0	0.1
ISOBUTANE.....	0.0	0.0	0.2
N-PENTANE.....	0.0	0.2	0.0
ISOPENTANE.....	0.0	0.1	TRACE
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.1
NITROGEN.....	0.2	0.3	0.3
OXYGEN.....	0.0	0.0	TRACE
ARGON.....	TRACE	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	2.5	1.3	1.8
HELIUM.....	0.02	0.02	0.02
HEATING VALUE*.....	988	1035	1030
SPECIFIC GRAVITY.....	0.582	0.592	0.598

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18507	INDEX SAMPLE 18497	INDEX SAMPLE 18638
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	ROGER MILLS	ROGER MILLS	ROGER MILLS
FIELD.....	DEMPSEY	MULE TRAIN	NOT GIVEN
WELL NAME.....	SHAW NO. 2-16	COBB NO. 2-22	J. R. SIMMONS NO. 1-36
LOCATION.....	SEC. 16, T12N, R24W	SEC. 22, T15N, R23W	SEC. 36, T12N, R23W
OWNER.....	KAISER-FRANCIS OIL CO.	APACHE CORP.	DYCO PETROLEUM CORP.
COMPLETED.....	07/02/87	08/01/87	03/02/88
SAMPLED.....	12/22/87	12/10/87	07/15/88
FORMATION.....	PENN-MORROW	PENN-SKINNER	PENN-MORROW U
GEOLOGIC PROVINCE CODE...	360	360	360
DEPTH, FEET.....	17432	11263	17394
WELLHEAD PRESSURE, PSIG...	7750	4105	7100
OPEN FLOW, MCFD.....	2700	5116	2800
COMPONENT, MOLE PCT			
METHANE.....	94.7	84.8	96.8
ETHANE.....	0.4	8.8	0.4
PROPANE.....	0.1	3.4	0.1
N-BUTANE.....	0.0	0.5	0.0
ISOBUTANE.....	0.0	0.7	0.0
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	0.1	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	1.6	0.6	0.2
OXYGEN.....	0.4	0.1	0.0
ARGON.....	TRACE	TRACE	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	2.7	0.9	2.5
HELIUM.....	0.01	0.03	0.02
HEATING VALUE*.....	969	1152	990
SPECIFIC GRAVITY.....	0.592	0.665	0.582

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18605	INDEX SAMPLE 18621	INDEX SAMPLE 18673
STATE.....	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY.....	STEPHENS	STEPHENS	STEPHENS
FIELD.....	MARLOW W	SHO-VEL-TUM	SHO-VEL-TUM
WELL NAME.....	MILLER NO. 1-18	J. J. MCCLANAHAN NO. 29	VIOLA PICKLE "B" NO. 1
LOCATION.....	SEC. 18, T2N, R7W	SEC. 35, T1S, R5W	SEC. 5, T1N, R5W
OWNER.....	HELMERICH & PAYNE, INC.	TEXACO INC.	CHEVRON U.S.A., INC.
COMPLETED.....	08/26/86	05/20/87	11/20/84
SAMPLED.....	06/02/88	06/27/88	09/13/88
FORMATION.....	PENN-COLINE	PENN-ALDRIDGE	PENN-ALDRIDGE
GEOLOGIC PROVINCE CODE.....	350	350	350
DEPTH, FEET.....	8618	2115	4162
WELLHEAD PRESSURE, PSIG.....	2450	630	1375
OPEN FLOW, MCFD.....	695	2500	9663
COMPONENT, MOLE PCT			
METHANE.....	79.7	79.3	85.1
ETHANE.....	7.8	8.4	5.4
PROPANE.....	4.0	6.7	2.9
N-BUTANE.....	2.7	2.3	1.0
ISOBUTANE.....	0.0	0.9	0.4
N-PENTANE.....	0.0	0.6	0.5
ISOPENTANE.....	1.4	0.3	0.1
CYCLOPENTANE.....	0.0	0.1	0.1
HEXANES PLUS.....	0.1	0.2	0.3
NITROGEN.....	3.8	1.0	4.1
OXYGEN.....	0.1	0.0	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.4	0.1	0.0
HELIUM.....	0.05	0.02	TRACE
HEATING VALUE*.....	1207	1292	0.08
SPECIFIC GRAVITY.....	0.724	0.743	0.668

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 88 18564	INDEX SAMPLE 89 18700	INDEX SAMPLE 90 18557
STATE.....	OKLAHOMA	PENNSYLVANIA	TEXAS
COUNTY.....	WOODS	CLINTON	BRAZORIA
FIELD.....	WHITEHORSE N	SLAUGHTERING GROUND	COLUMBIA E
WELL NAME.....	ENGLE "B" NO. 1-6	TG FOREST PRODUCTS NO. C-2	H. R. HAWES NO. 1
LOCATION.....	SEC. 6, T27N, R16W	SEC. E, HOWARD NW QUAD, BEEC	SAMUEL CARTER SUR., A-53
OWNER.....	ANADARKO PETROLEUM CORP.	EASTERN STATES EXPLORATION C	GENERAL ATLANTIC ENERGY CORP
COMPLETED.....	08/--/87	06/01/88	--/--/86
SAMPLED.....	03/28/88	11/28/88	03/10/88
FORMATION.....	MISS-OSWEGO	DEVO-ELK	OLIG-FRIO
GEOLOGIC PROVINCE CODE...	360	160	220
DEPTH, FEET.....	5750	2536	10462
WELLHEAD PRESSURE, PSIG...	1760	1680	NOT GIVEN
OPEN FLOW, MCFD.....	980	4920	3591
COMPONENT, MOLE PCT			
METHANE.....	85.3	96.3	94.3
ETHANE.....	7.6	2.4	2.2
PROPANE.....	3.4	0.2	1.1
N-BUTANE.....	0.8	0.0	0.1
ISOBUTANE.....	0.6	0.1	0.5
N-PENTANE.....	0.4	0.0	0.0
ISOPENTANE.....	0.2	0.0	0.2
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.2	0.0	0.0
NITROGEN.....	0.3	0.8	0.5
OXYGEN.....	0.0	0.0	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	1.1	0.1	1.0
HELIUM.....	0.05	0.13	TRACE
HEATING VALUE*.....	1175	1027	1055
SPECIFIC GRAVITY.....	0.676	0.573	0.603

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18492	INDEX SAMPLE 18571	INDEX SAMPLE 18568
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	BRAZORIA	DUVAL	DUVAL
FIELD.....	DANBURY	FOUR SEVENS	STAR BRITE
WELL NAME.....	KILROY-VRAZEL NO. 1	OLVERA GAS UNIT NO. 1	LYDIA SAENZ GAS NO. 1
LOCATION.....	MATTIE SHAPARD SUR., A-668	J. W. FISHER SUR., A-220	F. L. GACIA 218 SUR., A-1596
OWNER.....	KILROY CO. OF TEXAS	SANTA FE ENERGY CO.	SANTA FE ENERGY CO.
COMPLETED.....	07/--/87	--/--/86	--/--/86
SAMPLED.....	12/05/87	04/08/88	04/--/88
FORMATION.....	OLIG-NODOSARIA BLANPIEDI	EOCE-YEGUA C	EOCE-YEGUA 7800 FT.
GEOLOGIC PROVINCE CODE...	220	220	220
DEPTH, FEET.....	8983	8112	7777
WELLHEAD PRESSURE, PSIG...	3500	4359	3926
OPEN FLOW, MCFD.....	3450	2700	1100
COMPONENT, MOLE PCT			
METHANE.....	89.6	89.9	88.7
ETHANE.....	5.5	5.2	5.8
PROPANE.....	1.9	2.3	2.5
N-BUTANE.....	0.4	0.5	0.5
ISOBUTANE.....	0.4	0.4	0.4
N-PENTANE.....	0.2	0.2	0.2
ISOPENTANE.....	TRACE	0.2	0.2
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.2	0.0	0.0
NITROGEN.....	0.8	0.1	0.1
OXYGEN.....	0.1	0.0	0.0
ARGON.....	TRACE	TRACE	TRACE
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	1.0	1.2	1.4
HELIUM.....	TRACE	TRACE	TRACE
HEATING VALUE*.....	1099	1111	1118
SPECIFIC GRAVITY.....	0.634	0.637	0.646

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 94 18574	INDEX SAMPLE 95 18575	INDEX SAMPLE 96 18606
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	DUVAL	DUVAL	EASTLAND
FIELD.....	STAR BRITE	STAR BRITE	HAWKINS
WELL NAME.....	M. RAMIREZ NO. 1 (LOWER)	M. RAMIREZ NO. 1 (UPPER)	HAWKINS NO. 1-20
LOCATION.....	L. RAMIREZ 13 SUR., A-586	L. RAMIREZ 13 SUR., A-586	SPIRES DOOLEY 10 SUR., A-77
OWNER.....	SANTA FE ENERGY CO.	SANTA FE ENERGY CO.	ENRE CORP.
COMPLETED.....	--/--/86	--/--/86	06/09/86
SAMPLED.....	04/07/88	04/07/88	06/03/88
FORMATION.....	EOCE-YEGUA 7080 FT.	EOCE-YEGUA 6860 FT.	EOCE-SALINE L
GEOLOGIC PROVINCE CODE.....	220	220	425
DEPTH, FEET.....	7102	6868	3307
WELLHEAD PRESSURE, PSIG.....	3300	2186	280
OPEN FLOW, MCFD.....	690	36	180
COMPONENT, MOLE PCT			
METHANE.....	87.5	90.8	74.0
ETHANE.....	6.1	4.9	11.7
PROPANE.....	3.1	2.1	5.6
N-BUTANE.....	0.8	0.5	1.3
ISOBUTANE.....	0.7	0.5	0.9
N-PENTANE.....	0.4	0.2	0.3
ISOPENTANE.....	0.3	0.1	0.3
CYCLOPENTANE.....	0.1	0.1	0.1
HEXANES PLUS.....	0.2	0.2	0.1
NITROGEN.....	0.2	0.1	5.3
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.7	0.6	0.3
HELIUM.....	TRACE	TRACE	0.21
HEATING VALUE*.....	1170	1120	1213
SPECIFIC GRAVITY.....	0.665	0.633	0.741

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18620	INDEX SAMPLE 18516	INDEX SAMPLE 18619
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	GLASSCOCK	HARRIS	HARRIS
FIELD.....	S.F.M.	LEE BELL	ULRICH
WELL NAME.....	K. S. BOONE "B" NO. 1	MOORE NO. 1	HANNAH NASH NO. 5
LOCATION.....	SEC. 17. BLK. 36, T3S, T&P S	RAMSEY H. PARKER SUR., A-651	NOT GIVEN
OWNER.....	SUN EXPLORATION & PRODUCTION	ROSEWOOD RESOURCES, INC.	MOBIL OIL CORP.
COMPLETED.....	01/07/88	--/--/86	05/20/88
SAMPLED.....	06/23/88	01/22/88	06/24/88
FORMATION.....	PENN-STRAWN	OLIG-DISCORBIS	EOCE-YEGUA
GEOLOGIC PROVINCE CODE.....	430	220	220
DEPTH, FEET.....	10141	11640	10770
WELLHEAD PRESSURE, PSIG.....	3050	5500	2700
OPEN FLOW, MCFD.....	9700	4095	70000
COMPONENT, MOLE PCT			
METHANE.....	75.3	92.5	89.5
ETHANE.....	13.9	3.3	5.1
PROPANE.....	6.3	1.4	2.5
N-BUTANE.....	1.6	0.4	0.6
ISOBUTANE.....	0.5	0.4	0.5
N-PENTANE.....	0.4	0.3	0.2
ISOPENTANE.....	0.2	TRACE	0.0
CYCLOPENTANE.....	0.1	0.0	TRACE
HEXANES PLUS.....	0.1	0.2	0.2
NITROGEN.....	1.1	0.3	0.2
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.2	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	1.1	1.2
HELIUM.....	0.02	TRACE	TRACE
HEATING VALUE*.....	1282	1080	1120
SPECIFIC GRAVITY.....	0.744	0.617	0.643

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 100 18578	INDEX SAMPLE 101 18517	INDEX SAMPLE 102 18677
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	HEMPHILL	HEMPHILL	HUTCHINSON
FIELD.....	BRISCOE	GILL RANCH	ARRINGTON
WELL NAME.....	HOLLAND "C" NO. 3-57	MATHERS NO. 2-14	KIOWA NO. 1
LOCATION.....	SEC. 57, BLK. M1, H&GN SUR.	SEC. 14, BLK. A2, H&GN SUR.	SEC. 117, BLK. 5T, T&NO SUR.
OWNER.....	ANADARKO PETROLEUM CORP.	MARSH, TOM F., INC.	ARRINGTON OIL CO., INC.
COMPLETED.....	01/--/88	09/05/87	07/12/87
SAMPLED.....	04/08/88	02/05/88	10/05/88
FORMATION.....	PERM-GRANITE WASH	PENN-MORROW	MISS-ST. GENEVIEVE
GEOLOGIC PROVINCE CODE...	360	360	440
DEPTH, FEET.....	11300	11801	6680
WELLHEAD PRESSURE, PSIG...	3150	3600	1850
OPEN FLOW, MCFD.....	2000	1749	2350
COMPONENT, MOLE PCT			
METHANE.....	81.6	92.1	90.7
ETHANE.....	9.5	2.4	4.0
PROPANE.....	4.3	1.0	2.0
N-BUTANE.....	1.3	0.4	0.3
ISOBUTANE.....	0.9	0.3	0.4
N-PENTANE.....	0.5	0.3	0.3
ISOPENTANE.....	0.1	0.0	0.0
CYCLOPENTANE.....	0.1	0.1	0.0
HEXANES PLUS.....	0.4	0.2	0.2
NITROGEN.....	0.8	1.4	1.7
OXYGEN.....	0.0	0.2	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.4	1.3	0.2
HELIUM.....	0.03	0.03	0.12
HEATING VALUE*.....	1235	1061	1088
SPECIFIC GRAVITY.....	0.709	0.623	0.624

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18513	INDEX SAMPLE 18527	INDEX SAMPLE 18510
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	JIM WELLS	LA SALLE	LIMESTONE
FIELD.....	BEN BOLT W	STOREY E	PERSONVILLE N
WELL NAME.....	ROGER HOFFMAN NO. 1	PAUL TREFF NO. 1	MUSE NO. 2
LOCATION.....	NOT GIVEN	HG&N SUR. NO. 121, A-260	NOT GIVEN
OWNER.....	COASTAL OIL & GAS CORP.	WILSON, VERN, ENERGY, INC.	MITCHELL ENERGY & DEVELOPMEN
COMPLETED.....	09/--/87	--/--/86	07/23/87
SAMPLED.....	01/20/88	02/29/88	01/13/88
FORMATION.....	EOCE-YEGUA	OLIG-FRIO	JURA-COTTON VALLEY
GEOLOGIC PROVINCE CODE...	220	220	260
DEPTH, FEET.....	7700	5341	11193
WELLHEAD PRESSURE, PSIG...	4100	NOT GIVEN	5415
OPEN FLOW, MCFD.....	86000	1630	6511
COMPONENT, MOLE PCT			
METHANE.....	91.3	74.7	93.6
ETHANE.....	4.4	8.4	1.0
PROPANE.....	1.9	7.8	0.2
N-BUTANE.....	0.4	2.6	0.0
ISOBUTANE.....	0.4	2.2	0.1
N-PENTANE.....	TRACE	1.1	0.0
ISOPENTANE.....	0.3	0.7	0.0
CYCLOPENTANE.....	0.0	0.2	0.0
HEXANES PLUS.....	0.0	0.8	0.0
NITROGEN.....	0.2	0.9	1.5
OXYGEN.....	0.0	TRACE	0.3
ARGON.....	TRACE	0.0	TRACE
HYDROGEN.....	0.1	0.2	0.1
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.9	0.5	3.1
HELIUM.....	TRACE	TRACE	TRACE
HEATING VALUE*.....	1093	1390	977
SPECIFIC GRAVITY.....	0.623	0.809	0.602

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18521	INDEX SAMPLE 18624	INDEX SAMPLE 18609
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	MC MULLEN	MENARD	NOLAN
FIELD.....	DEVIL'S WATER HOLE	MENARD W	USSERY
WELL NAME.....	NAUMANN NO. 1	BRANDENBERGER ESTATE NO. 3	JOHNNY USSERY NO. 1
LOCATION.....	CHARLES T. STANSEL SUR., A-1	SEC. 244, I&GN SUR., A-445	MARY JONES F-1110 SUR.
OWNER.....	AMERICAN COMETRA, INC.	NORDAN OIL & GAS CORP.	WATCO ENERGY, INC.
COMPLETED.....	--/--/86	05/--/87	10/10/87
SAMPLED.....	02/18/88	06/--/88	06/10/88
FORMATION.....	EOCE-WILCOX	PENN-MORRIS	PENN-CADDO
GEOLOGIC PROVINCE CODE...	220	410	430
DEPTH, FEET.....	8650	2447	6495
WELLHEAD PRESSURE, PSIG...	NOT GIVEN	995	1800
OPEN FLOW, MCFD.....	4124	4736	320
COMPONENT, MOLE PCT			
METHANE.....	87.8	85.2	63.2
ETHANE.....	4.8	1.2	12.5
PROPANE.....	2.5	0.4	4.0
N-BUTANE.....	0.5	0.0	5.8
ISOBUTANE.....	0.5	0.2	0.0
N-PENTANE.....	0.1	0.0	TRACE
ISOPENTANE.....	0.2	0.0	2.9
CYCLOPENTANE.....	0.1	0.0	0.2
HEXANES PLUS.....	0.0	0.0	0.4
NITROGEN.....	1.3	12.2	8.7
OXYGEN.....	0.2	TRACE	0.6
ARGON.....	TRACE	TRACE	0.0
HYDROGEN.....	TRACE	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	2.1	0.2	1.4
HELIUM.....	TRACE	0.43	0.07
HEATING VALUE*.....	1085	905	1324
SPECIFIC GRAVITY.....	0.651	0.620	0.871

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18514	INDEX SAMPLE 18522	INDEX SAMPLE 18632
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	OCHILTREE	OCHILTREE	OCHILTREE
FIELD.....	HORIZON	MEKEEL	ROADSIDE
WELL NAME.....	SWINK "C" NO. 2	ESTHER MAY NO. 2-227	GOOD NO. 1-231
LOCATION.....	SEC. 121, BLK. 13, T&NO SUR.	SEC. 227, BLK. 43, H&TC SUR.	SEC. 231, BLK. 43, H&TC SUR.
OWNER.....	PHILLIPS PETROLEUM CO.	NATURAL GAS ANADARKO CO.	PHILCON DEVELOPMENT CO.
COMPLETED.....	02/10/87	07/06/87	08/--/87
SAMPLED.....	01/25/88	02/22/88	07/08/88
FORMATION.....	PENN-MORROW L	PENN-MORROW U	PENN-ATOKA
GEOLOGIC PROVINCE CODE...	360	360	360
DEPTH, FEET.....	8990	9364	9300
WELLHEAD PRESSURE, PSIG...	2279	2065	1100
OPEN FLOW, MCFD.....	4000	2150	6000
COMPONENT, MOLE PCT			
METHANE.....	85.7	82.0	85.0
ETHANE.....	5.8	9.4	9.2
PROPANE.....	4.0	5.2	3.0
N-BUTANE.....	1.5	1.1	0.7
ISOBUTANE.....	0.5	0.4	0.1
N-PENTANE.....	0.5	0.2	0.3
ISOPENTANE.....	0.5	0.1	TRACE
CYCLOPENTANE.....	0.1	0.1	0.0
HEXANES PLUS.....	0.2	0.2	0.1
NITROGEN.....	0.5	0.6	0.5
OXYGEN.....	0.0	0.0	0.1
ARGON.....	TRACE	0.0	0.0
HYDROGEN.....	0.2	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.6	0.7	0.8
HELIUM.....	0.06	0.05	0.06
HEATING VALUE*.....	1195	1208	1151
SPECIFIC GRAVITY.....	0.683	0.696	0.662

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 112 18653	INDEX SAMPLE 113 18680	INDEX SAMPLE 114 18681
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	OCHILTREE	POTTER	POTTER
FIELD.....	WAKA W	BIVINS RANCH	BIVINS RANCH
WELL NAME.....	VINCENT NO. 2	BIVINS NO. 1-212	BIVINS NO. 1-212
LOCATION.....	SEC. 47, BLK. 45-T, T&NO SUR	SEC. 212, BLK. 2, AB&M SUR.	SEC. 212, BLK. 2, AB&M SUR.
OWNER.....	KAISER-FRANCIS OIL CO.	BAKER & TAYLOR DRILLING CO.	BAKER & TAYLOR DRILLING CO.
COMPLETED.....	06/28/88	--/--/00	--/--/00
SAMPLED.....	08/06/88	10/21/88	10/21/88
FORMATION.....	PENN-CLEVELAND	PERM-BROWN DOLOMITE	PERM-BROWN DOLOMITE
GEOLOGIC PROVINCE CODE...	360	440	440
DEPTH, FEET.....	6492	3444	3444
WELLHEAD PRESSURE, PSIG...	1175	500	500
OPEN FLOW, MCFD.....	2345	NOT GIVEN	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE.....	82.2	57.3	60.3
ETHANE.....	3.9	3.1	3.3
PROPANE.....	4.6	1.4	1.5
N-BUTANE.....	1.2	0.3	0.3
ISOBUTANE.....	0.6	0.3	0.3
N-PENTANE.....	0.3	0.0	0.0
ISOPENTANE.....	0.1	0.2	0.2
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.2	0.0	0.0
NITROGEN.....	5.4	23.1	24.1
OXYGEN.....	0.0	0.0	0.1
ARGON.....	0.0	0.1	0.1
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	1.2	12.8	8.5
HELIUM.....	0.24	1.38	1.44
HEATING VALUE*.....	1113	702	736
SPECIFIC GRAVITY.....	0.694	0.812	0.775

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 115 18695	INDEX SAMPLE 116 18696	INDEX SAMPLE 117 18642
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	POTTER	POTTER	ROBERTS
FIELD.....	BIVINS RANCH	BIVINS RANCH	CREE-FLOWERS
WELL NAME.....	BIVINS NO. 1-212	BIVINS NO. 1-212	WINNIFRED "A" NO. 1
LOCATION.....	SEC. 212, BLK. 2, AB&M SUR.	SEC. 212, BLK. 2, AB&M SUR.	SEC. 69, BLK. C, G&M SUR.
OWNER.....	BAKER & TAYLOR DRILLING CO.	BAKER & TAYLOR DRILLING CO.	PHILLIPS PETROLEUM CO.
COMPLETED.....	--/--/00	--/--/00	04/15/88
SAMPLED.....	11/28/88	11/28/88	07/25/88
FORMATION.....	PERM-BROWN DOLOMITE	PERM-BROWN DOLOMITE	PERM-WHITE DOLOMITE
GEOLOGIC PROVINCE CODE...	440	440	360
DEPTH, FEET.....	3444	3444	4297
WELLHEAD PRESSURE, PSIG...	10	10	NOT GIVEN
OPEN FLOW, MCFD.....	NOT GIVEN	NOT GIVEN	996
COMPONENT, MOLE PCT			
METHANE.....	64.7	65.9	77.6
ETHANE.....	3.5	3.5	8.8
PROPANE.....	0.7	1.3	6.1
N-BUTANE.....	0.9	1.1	1.4
ISOBUTANE.....	0.0	0.0	1.2
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	2.0	0.0	0.0
CYCLOPENTANE.....	0.0	0.1	TRACE
HEXANES PLUS.....	0.2	0.2	0.3
NITROGEN.....	24.7	25.1	4.4
OXYGEN.....	0.0	0.0	TRACE
ARGON.....	0.1	0.1	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	1.2	1.0	TRACE
HELIUM.....	1.92	1.52	0.12
HEATING VALUE*.....	865	818	1209
SPECIFIC GRAVITY.....	0.744	0.718	0.726

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 118 18556	INDEX SAMPLE 119 18581	INDEX SAMPLE 120 18570
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	ROBERTS	ROBERTS	SHACKELFORD
FIELD.....	MARTIN-CLARK	PARSELL	NAIL RANCH
WELL NAME.....	MARTIN-CLARK NO. 1-93	GOBER NO. 1	NAIL ZJ NO. 2
LOCATION.....	SEC. 93, BLK. C, G&M SUR.	SEC. 140, BLK. 42, H&TC SUR.	ETRR SUR., A-1234
OWNER.....	CNG PRODUCING CO.	BHP PETROLEUM (AMERICAS), IN	JACOBS, C. E., CO.
COMPLETED.....	10/05/87	09/--/87	--/--/87
SAMPLED.....	03/10/88	03/--/88	03/05/88
FORMATION.....	PERM-GRANITE WASH	PENN-DOUGLAS L	PENN-CONGLOMERATE
GEOLOGIC PROVINCE CODE...	360	360	425
DEPTH, FEET.....	8872	6410	4644
WELLHEAD PRESSURE, PSIG...	1868	2175	500
OPEN FLOW, MCFD.....	1257	2800	3580
COMPONENT, MOLR PCT			
METHANE.....	76.9	78.5	71.0
ETHANE.....	11.9	10.3	11.4
PROPANE.....	6.3	5.6	6.0
N-BUTANE.....	1.7	1.3	1.3
ISOBUTANE.....	0.8	0.7	0.6
N-PENTANE.....	0.5	0.2	0.3
ISOPENTANE.....	0.2	0.2	0.2
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.3	0.0	0.2
NITROGEN.....	0.8	2.9	8.7
OXYGEN.....	0.0	0.1	0.0
ARGON.....	0.0	TRACE	TRACE
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.4	0.2	0.2
HELIUM.....	0.05	0.14	0.24
HEATING VALUE*.....	1289	1207	1171
SPECIFIC GRAVITY.....	0.745	0.712	0.749

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 121 18502	INDEX SAMPLE 122 18608	INDEX SAMPLE 123 18596
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	SHERMAN	SHERMAN	SHERMAN
FIELD.....	CECILIA	CECILIA	WILDCAT
WELL NAME.....	RIFFE NO. 2	CECILIA "A" NO. 1	COLDWATER "C" NO. 11
LOCATION.....	SEC. 64, BLK. 1-C, GH&H SUR.	SEC. 87, BLK. 1-C, GH&H SUR.	SEC. 37, BLK. 3-B, GH&H SUR.
OWNER.....	PHILLIPS PETROLEUM CO.	PHILLIPS PETROLEUM CO.	PHILLIPS PETROLEUM CO.
COMPLETED.....	07/28/87	04/01/87	01/27/88
SAMPLED.....	12/22/87	06/03/88	05/22/88
FORMATION.....	PENN-MARMATON	PENN-MARMATON	MISS-SPERGEN
GEOLOGIC PROVINCE CODE...	360	360	360
DEPTH, FEET.....	5615	5586	6235
WELLHEAD PRESSURE, PSIG...	1281	1275	1520
OPEN FLOW, MCFD.....	3200	2650	5659
COMPONENT, MOLE PCT			
METHANE.....	69.8	75.6	80.3
ETHANE.....	8.2	8.4	5.1
PROPANE.....	4.7	3.9	3.1
N-BUTANE.....	1.2	3.0	0.9
ISOBUTANE.....	0.5	0.0	0.4
N-PENTANE.....	0.3	0.1	0.4
ISOPENTANE.....	TRACE	1.3	TRACE
CYCLOPENTANE.....	0.1	0.2	0.1
HEXANES PLUS.....	0.2	0.2	0.2
NITROGEN.....	12.4	6.6	8.9
OXYGEN.....	2.0	0.2	0.0
ARGON.....	0.1	0.0	TRACE
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.4	0.1
HELIUM.....	0.16	0.17	0.37
HEATING VALUE*.....	1060	1193	1061
SPECIFIC GRAVITY.....	0.749	0.746	0.682

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 124 18597	INDEX SAMPLE 125 18524	INDEX SAMPLE 126 18693
STATE.....	TEXAS	TEXAS	TEXAS
COUNTY.....	SHERMAN	STERLING	WHEELER
FIELD.....	WILDCAT	SUGGS RANCH	ALLISON PARKS
WELL NAME.....	BRIDWELL "A" NO. 1	COUNCIL NO. 516	REID TRUST NO. 1
LOCATION.....	SEC. 89, BLK. 1-C, GH&H SUR.	H&TC SUR.	SEC. 18, BLK. RE, R&E SUR.
OWNER.....	PHILLIPS PETROLEUM CO.	WAGNER & BROWN	ETS ENTERPRISES, INC.
COMPLETED.....	10/27/87	--/--/87	04/--/88
SAMPLED.....	05/22/88	02/26/88	11/21/88
FORMATION.....	PENN-CLEVELAND	PENN-CANYON	PENN-MORROW
GEOLOGIC PROVINCE CODE....	360	430	360
DEPTH, FEET.....	5407	7200	15310
WELLHEAD PRESSURE, PSIG...	1154	1020	3692
OPEN FLOW, MCFD.....	3600	1030	3200
COMPONENT, MOLE PCT			
METHANE.....	71.4	73.6	95.9
ETHANE.....	9.1	10.1	0.9
PROPANE.....	5.8	7.3	0.1
N-BUTANE.....	1.4	1.6	0.1
ISOBUTANE.....	0.5	0.7	0.0
N-PENTANE.....	0.3	0.4	0.0
ISOPENTANE.....	0.2	0.1	0.0
CYCLOPENTANE.....	0.0	0.1	0.0
HEXANES PLUS.....	0.1	0.1	0.2
NITROGEN.....	10.4	5.5	0.0
OXYGEN.....	0.0	0.0	0.0
ARGON.....	TRACE	TRACE	TRACE
HYDROGEN.....	0.0	TRACE	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.4	2.7
HELIUM.....	0.25	0.11	0.02
HEATING VALUE*.....	1131	1226	1003
SPECIFIC GRAVITY.....	0.747	0.753	0.592

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 127 18694	INDEX SAMPLE 128 18666	INDEX SAMPLE 129 18678
STATE.....	TEXAS	TEXAS	VIRGINIA
COUNTY.....	WHEELER	ZAPATA	BUCHANAN
FIELD.....	WILDCAT	BENAVIDEZ	KEEN MOUNTAIN
WELL NAME.....	SIMMONS NO. 1-2	CARMEN D. SANCHEZ NO. 1	CLINCH FIELD NO. 9
LOCATION.....	SEC. 2, BLK. L, J. M. LINDSE	J. V. BORRERO GRANT, A-209	GRUNDY DIST., PATTERSON QUAD
OWNER.....	HAWKINS OIL & GAS, INC.	ENRON OIL & GAS CO.	ASHLAND EXPLORATION, INC.
COMPLETED.....	03/30/88	10/09/87	05/29/87
SAMPLED.....	11/16/88	08/29/88	10/03/88
FORMATION.....	PENN-GRANITE WASH	EOCE-WILCOX	MISS-BIG LIME-BEREA
GEOLOGIC PROVINCE CODE...	360	220	160
DEPTH, FEET.....	11408	9548	4955
*WELLHEAD PRESSURE, PSIG...	3000	1400	600
OPEN FLOW, MCFD.....	500	18982	5213
COMPONENT, MOLE PCT			
METHANE.....	79.0	94.4	97.7
ETHANE.....	11.9	2.2	1.5
PROPANE.....	4.7	0.4	0.1
N-BUTANE.....	1.8	0.0	0.0
ISOBUTANE.....	0.1	0.2	TRACE
N-PENTANE.....	0.3	0.0	0.0
ISOPENTANE.....	0.4	0.0	0.0
CYCLOPENTANE.....	0.1	0.0	0.0
HEXANES PLUS.....	0.2	0.0	0.0
NITROGEN.....	1.4	0.2	0.5
OXYGEN.....	0.1	0.0	0.1
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.0	2.7	0.2
HELIUM.....	0.04	0.01	0.07
HEATING VALUE*.....	1241	1010	1018
SPECIFIC GRAVITY.....	0.715	0.598	0.566

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 18612	INDEX SAMPLE 18528	INDEX SAMPLE 18623
STATE.....	VIRGINIA	WEST VIRGINIA	WEST VIRGINIA
COUNTY.....	WISE	DODDRIDGE	KANAWHA
FIELD.....	NORA	MEATHOUSE FORK-BRISTOL	INDIAN CREEK
WELL NAME.....	BANNER COAL CO. NO. P-348	DAVIS NO. 1	BLUE CREEK COAL NO. 21096
LOCATION.....	LIPPS DIST., COEBURN QUAD.	GREENBRIAR DIST., BIG ISAAC	MALDEN DIST., QUICK QUAD.
OWNER.....	PHILADELPHIA OIL CO.	EXCEL ENERGY, INC.	COLUMBIA NATURAL RESOURCES,
COMPLETED.....	01/27/88	07/06/87	09/10/87
SAMPLED.....	06/08/88	03/02/88	06/27/88
FORMATION.....	MISS-BEREA	DEVO-ALEXANDRIAN-BENSON	SILU-TUSCARORA
GEOLOGIC PROVINCE CODE...	160	160	160
DEPTH, FEET.....	5077	4968	6891
WELLHEAD PRESSURE, PSIG...	680	1825	1602
OPEN FLOW, MCFD.....	1425	1200	5280
COMPONENT, MOLE PCT			
METHANE.....	97.3	78.7	28.7
ETHANE.....	1.8	12.6	0.3
PROPANE.....	0.2	4.5	TRACE
N-BUTANE.....	0.0	1.0	0.0
ISOBUTANE.....	0.1	0.8	0.0
N-PENTANE.....	0.0	0.2	0.0
ISOPENTANE.....	TRACE	0.2	0.0
CYCLOPENTANE.....	0.0	TRACE	0.0
HEXANES PLUS.....	0.0	0.2	0.0
NITROGEN.....	0.5	1.4	5.0
OXYGEN.....	0.0	0.1	0.3
ARGON.....	0.0	0.0	TRACE
HYDROGEN.....	0.0	0.2	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.1	0.1	65.5
HELIUM.....	0.05	0.07	0.15
HEATING VALUE*.....	1025	1229	296
SPECIFIC GRAVITY.....	0.569	0.707	1.216

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 133 18641	INDEX SAMPLE 134 18662	INDEX SAMPLE 135 18603
STATE.....	WEST VIRGINIA	WEST VIRGINIA	WEST VIRGINIA
COUNTY.....	KANAWHA	LEWIS	RITCHIE
FIELD.....	LOW QUALITY GAS	FREEMANS CREEK	CLAY DIST.
WELL NAME.....	BLUE CREEK COAL NO. 821143	PAUL LOSH ET AL NO. 2	TAYLOR NO. 1
LOCATION.....	MALDEN DIST., SLATE LICK HOL	SEC. L, FREEMANS CREEK DIST.	PULLMAN QUAD.
OWNER.....	COLUMBIA NATURAL RESOURCES,	STONEWALL GAS CO.	HARTON ENERGY CORP.
COMPLETED.....	11/16/87	--/--/87	--/--/87
SAMPLED.....	07/21/88	08/24/88	06/--/88
FORMATION.....	SILU-TUSCARORA	DEVO-ALEXANDRIAN-BENSON	DEVO-RILEY
GEOLOGIC PROVINCE CODE...	160	160	160
DEPTH, FEET.....	6773	5964	4155
WELLHEAD PRESSURE, PSIG...	1549	1725	1300
OPEN FLOW, MCFD.....	22444	1200	1500
COMPONENT, MOLE PCT			
METHANE.....	26.0	83.5	77.7
ETHANE.....	0.3	10.6	10.8
PROPANE.....	TRACE	3.3	3.9
N-BUTANE.....	0.0	0.6	1.0
ISOBUTANE.....	0.0	0.4	0.2
N-PENTANE.....	0.0	0.4	0.1
ISOPENTANE.....	0.0	0.0	0.4
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.2	0.0
NITROGEN.....	4.3	1.0	4.9
OXYGEN.....	0.1	0.1	0.9
ARGON.....	TRACE	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	69.1	0.1	0.1
HELIUM.....	0.14	0.06	0.07
HEATING VALUE*.....	269	1176	1144
SPECIFIC GRAVITY.....	1.247	0.670	0.701

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 136 18657	INDEX SAMPLE 137 18604	INDEX SAMPLE 138 18509
STATE.....	WEST VIRGINIA	WEST VIRGINIA	WYOMING
COUNTY.....	RITCHIE	WYOMING	CAMPBELL
FIELD.....	PULLMAN	POCAHONTAS	WOOD W
WELL NAME.....	LANGFORD "B" NO. 83-2	POCAHONTAS LAND CO. NO. 1-63	FEDERAL NO. 31-15
LOCATION.....	UNION DIST., PULLMAN QUAD.	BARKERS RIDGE DIST., CRUMPLE	SEC. 15, T51N, R68W
OWNER.....	BETT-RO, INC.	CABOT OIL & GAS CORP.	PRENALTA CORP.
COMPLETED.....	10/30/87	--/--/88	10/14/87
SAMPLED.....	08/08/88	05/18/88	01/11/88
FORMATION.....	DEVO-SHALE	MISS-BIG LIME-WEIR	CRET-DAKOTA
GEOLOGIC PROVINCE CODE...	160	160	515
DEPTH, FEET.....	3424	2848	5675
WELLHEAD PRESSURE, PSIG...	900	760	950
OPEN FLOW, MCFD.....	NOT GIVEN	1140	1797
COMPONENT, MOLE PCT			
METHANE.....	78.9	97.8	97.4
ETHANE.....	12.4	1.3	0.7
PROPANE.....	5.4	0.1	0.2
N-BUTANE.....	0.9	0.0	0.0
ISOBUTANE.....	0.6	TRACE	0.1
N-PENTANE.....	0.1	0.0	0.0
ISOPENTANE.....	0.2	0.0	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	1.3	0.6	0.5
OXYGEN.....	TRACE	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.1
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.1	0.1	0.9
HELIUM.....	0.07	0.08	0.01
HEATING VALUE.....	1227	1016	1011
SPECIFIC GRAVITY.....	0.705	0.565	0.572

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 139 18511	INDEX SAMPLE 140 18616	INDEX SAMPLE 141 18646
STATE.....	WYOMING	WYOMING	WYOMING
COUNTY.....	CARBON	FREMONT	NATRONA
FIELD.....	CRESTON	SHELDON DOME	NOT GIVEN
WELL NAME.....	CRESTON NOSE UNIT NO. 1	SHOSHONE-ARAPAHOE NO. 1	WILDHORSE BUTTE NO. 28-1
LOCATION.....	SEC. 9, T18N, R92W	SEC. 16, T5N, R2W	SEC. 28, T35N, R87W
OWNER.....	AMOCO PRODUCTION CO.	TURNER, SMITH & ASSOCIATES	STANDARD OIL PRODUCTION CO.
COMPLETED.....	11/19/85	09/20/85	08/02/85
SAMPLED.....	01/17/88	06/15/88	07/20/88
FORMATION.....	CRET-BLAIR	CRET-MUDDY	CRET-MUDDY
GEOLOGIC PROVINCE CODE...	535	530	530
DEPTH, FEET.....	12364	3720	14050
WELLHEAD PRESSURE, PSIG...	7250	1390	5800
OPEN FLOW, MCFD.....	2943	6000	3400
COMPONENT, MOLE PCT			
METHANE.....	89.8	89.6	94.7
ETHANE.....	6.0	5.1	2.5
PROPANE.....	1.9	2.0	0.6
N-BUTANE.....	0.3	0.1	0.0
ISOBUTANE.....	0.5	0.3	0.2
N-PENTANE.....	0.0	0.3	0.0
ISOPENTANE.....	0.1	0.1	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.1	0.1	0.0
NITROGEN.....	0.4	1.9	0.6
OXYGEN.....	0.0	TRACE	0.1
ARGON.....	0.1	0.0	0.0
HYDROGEN.....	0.1	0.0	0.0
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.6	0.3	1.4
HELIUM.....	TRACE	0.03	0.01
HEATING VALUE*.....	1104	1092	1025
SPECIFIC GRAVITY.....	0.628	0.629	0.591

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE 142 18652	INDEX SAMPLE 143 18493	INDEX SAMPLE 144 18526
STATE.....	WYOMING	WYOMING	WYOMING
COUNTY.....	SWEETWATER	SWEETWATER	SWEETWATER
FIELD.....	JAMES CREEK	LINCOLN ROAD	LINCOLN ROAD
WELL NAME.....	BRITZ FEDERAL NO. 1-31	GOVT. CE BREHM NO. 1	LINCOLN ROAD NO. 2-9
LOCATION.....	SEC. 31, T15N, R103W	SEC. 3, T24N, R111W	SEC. 9, T24N, R111W
OWNER.....	AJAX ISLAND PETROLEUM, INC.	TEXACO INC.	THERMAL EXPLORATION, INC.
COMPLETED.....	08/17/84	03/12/87	01/27/87
SAMPLED.....	08/01/88	12/02/87	02/29/88
FORMATION.....	CRET-DAKOTA	CRET-DAKOTA C	CRET-DAKOTA
GEOLOGIC PROVINCE CODE...	535	535	535
DEPTH, FEET.....	5276	10536	10544
WELLHEAD PRESSURE, PSIG...	491	4093	4100
OPEN FLOW, MCFD.....	1870	7300	10000
COMPONENT, MOLE PCT			
METHANE.....	82.9	86.3	77.4
ETHANE.....	4.4	6.4	7.6
PROPANE.....	2.5	3.3	6.1
N-BUTANE.....	0.7	0.8	3.1
ISOBUTANE.....	0.5	0.4	1.7
N-PENTANE.....	0.4	0.3	0.7
ISOPENTANE.....	0.1	0.1	1.4
CYCLOPENTANE.....	0.1	0.1	0.0
HEXANES PLUS.....	0.2	0.2	0.5
NITROGEN.....	6.9	1.0	0.9
OXYGEN.....	0.8	0.1	0.0
ARGON.....	0.0	TRACE	0.0
HYDROGEN.....	0.0	0.0	0.2
HYDROGEN SULFIDE**.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.8	0.3
HELIUM.....	0.06	0.01	0.01
HEATING VALUE*.....	1058	1150	1358
SPECIFIC GRAVITY.....	0.672	0.666	0.786

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX SAMPLE	145 18501
STATE.....	WYOMING	
COUNTY.....	UINTA	
FIELD.....	LUCKEY DITCH	
WELL NAME.....	TAYLOR RANCH NO. 33-3	
LOCATION.....	SEC. 3, T12N, R114W	
OWNER.....	MAXUS EXPLORATION CO.	
COMPLETED.....	03/14/87	
SAMPLED.....	12/--/87	
FORMATION.....	CRET-DAKOTA	
GEOLOGIC PROVINCE CODE.....	535	
DEPTH, FEET.....	14376	
WELLHEAD PRESSURE, PSIG...	4300	
OPEN FLOW, MCFD.....	1116	
COMPONENT, MOLE PCT		
METHANE.....	78.0	---
ETHANE.....	7.6	---
PROPANE.....	2.8	---
N-BUTANE.....	0.5	---
ISOBUTANE.....	0.7	---
N-PENTANE.....	0.0	---
ISOPENTANE.....	0.1	---
CYCLOPENTANE.....	0.0	---
HEXANES PLUS.....	0.1	---
NITROGEN.....	6.9	---
OXYGEN.....	1.7	---
ARGON.....	0.1	---
HYDROGEN.....	0.0	---
HYDROGEN SULFIDE**.....	0.0	---
CARBON DIOXIDE.....	1.4	---
HELIUM.....	0.02	---
HEATING VALUE*.....	1049	---
SPECIFIC GRAVITY.....	0.694	---

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 2. SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 18655	INDEX SAMPLE 18549	INDEX SAMPLE 18553
STATE.....	COLORADO	LOUISIANA	LOUISIANA
COUNTY.....	LA PLATA	ACADIA	BEAUREGARD
FIELD.....	IGNACIO	ROANOKE, HIGH ISLAND OCS	OFFSHORE-CAMERON W
LOCATION.....	8 IN.	16 IN. INLET	20, 24, 2-30 IN. INLET
OWNER.....	WESTERN GAS SUPPLY CO.	TEXAS GAS TRANSMISSION CORP.	TRUNKLINE GAS CO.
SAMPLED.....	08/05/88	03/08/88	03/09/88
FORMATION.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE.....	580	220	220
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	580	825	689
FLOW, MCFD.....	28000	175000	99000
COMPONENT, MOLE PCT			
METHANE.....	92.2	93.7	96.7
ETHANE.....	3.1	3.1	1.7
PROPANE.....	1.0	1.1	0.4
N-BUTANE.....	0.2	0.3	0.0
ISOBUTANE.....	0.2	0.5	0.2
N-PENTANE.....	0.1	0.0	0.0
ISOPENTANE.....	0.1	0.0	TRACE
CYCLOPENTANE.....	0.0	0.1	0.0
HEXANES PLUS.....	0.1	0.4	0.0
NITROGEN.....	0.1	0.1	0.2
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE.....	0.0	0.0	0.0
CARBON DIOXIDE.....	3.0	0.8	0.0
HELIUM.....	0.01	TRACE	0.6
HEATING VALUE*	1041	1080	TRACE
SPECIFIC GRAVITY.....	0.620	0.611	1030
			0.578

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 4 18554	INDEX SAMPLE 5 18531	INDEX SAMPLE 6 18544
STATE.....	LOUISIANA	LOUISIANA	LOUISIANA
PARISH.....	BEAUREGARD	CAMERON	LAFOURCHE
FIELD.....	TIMBALIER S, SHIP SHOAL	LA-OCS, CAMERON BLK.	GRAND ISLE, BLKS. 47 & 48
LOCATION.....	20 & 30 IN. INLET	30 IN. INLET	16 IN. INLET
OWNER.....	TRUNKLINE GAS CO.	TEXAS EASTERN GAS PIPELINE C	TENNECO GAS TRANSPORTATION C
SAMPLED.....	03/09/88	03/01/88	03/03/88
FORMATION.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE...	220	220	220
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	689	735	750
FLOW, MCFD.....	503000	615000	15000
COMPONENT, MOLE PCT			
METHANE.....	96.9	97.3	92.8
ETHANE.....	1.7	1.4	3.4
PROPANE.....	0.4	0.6	1.6
N-BUTANE.....	0.0	0.0	0.4
ISOBUTANE.....	0.2	0.4	0.6
N-PENTANE.....	0.0	0.0	0.2
ISOPENTANE.....	0.0	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	0.1
HEXANES PLUS.....	0.0	0.0	0.2
NITROGEN.....	0.2	0.1	0.2
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.7	0.2	0.5
HELIUM.....	TRACE	TRACE	TRACE
HEATING VALUE*.....	1028	1040	1100
SPECIFIC GRAVITY.....	0.576	0.576	0.619

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 7 18545	INDEX SAMPLE 8 18543	INDEX SAMPLE 9 18546
STATE.....	LOUISIANA	LOUISIANA	LOUISIANA
PARISH.....	LAFOURCHE	LAFOURCHE	PLAQUEMINES
FIELD.....	MUSKRAT AREA-OFFSHORE	TIMBALIER AREA S	SOUTH PASS-OFFSHORE
LOCATION.....	36 IN. INLET	20 IN. INLET	26 IN. INLET
OWNER.....	TENNECO GAS TRANSPORTATION C	TENNECO GAS TRANSPORTATION C	TENNECO GAS TRANSPORTATION C
SAMPLED.....	03/03/88	03/03/88	03/04/88
FORMATION.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE...	220	220	220
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	750	900	600
FLOW, MCFD.....	1000000	50000	250000
COMPONENT, MOLE PCT			
METHANE.....	96.7	97.2	96.3
ETHANE.....	1.7	1.2	1.7
PROPANE.....	0.7	0.5	0.8
N-BUTANE.....	0.1	0.2	0.1
ISOBUTANE.....	0.3	0.2	0.3
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.0	TRACE	0.2
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.1	0.1	0.0
NITROGEN.....	0.2	0.3	0.2
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	TRACE	TRACE
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.2	0.3	0.3
HELIUM.....	TRACE	TRACE	TRACE
HEATING VALUE*	1046	1037	1050
SPECIFIC GRAVITY.....	0.581	0.578	0.585

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 18548	INDEX SAMPLE 18547	INDEX SAMPLE 18540
STATE.....	LOUISIANA	LOUISIANA	LOUISIANA
PARISH.....	ST. HELENA	ST. LANDRY	ST. MARY
FIELD.....	MARSH ISLAND S BLK. 57	BAYOU SALE LINE (INLAND)	MARSH ISLAND, EUGENE ISLAND
LOCATION.....	36 IN. INLET	30 IN. INLET	30 IN. INLET
OWNER.....	UNITED GAS PIPELINE CO.	UNITED GAS PIPELINE CO.	ANR PIPELINE CO.
SAMPLED.....	03/07/88	03/07/88	03/02/88
FORMATION.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE...	220	220	220
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	660	840	700
FLOW, MCFD.....	200000	280000	850000
COMPONENT, MOLE PCT			
METHANE.....	96.6	97.8	96.3
ETHANE.....	1.5	1.2	1.8
PROPANE.....	0.4	0.4	0.7
N-BUTANE.....	0.1	0.0	0.1
ISOBUTANE.....	0.2	0.2	0.4
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	0.1	TRACE	0.0
CYCLOPENTANE.....	0.0	0.0	TRACE
HEXANES PLUS.....	0.0	0.0	0.2
NITROGEN.....	0.5	0.1	0.1
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.7	0.3	0.0
HELIUM.....	TRACE	TRACE	0.2
HEATING VALUE*	1027	1029	1057
SPECIFIC GRAVITY.....	0.580	0.570	0.587

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 13 18532	INDEX SAMPLE 14 18539	INDEX SAMPLE 15 18538
STATE.....	LOUISIANA	LOUISIANA	LOUISIANA
PARISH.....	VERMILION	VERMILION	VERMILION
FIELD.....	EUGENE ISLAND W & CAMERON S	OFFSHORE-FROM SEA ROBIN SYS.	VERMILION BLKS. 23,26,27,28
LOCATION.....	36 IN. INLET	36 IN. INLET	16 & 18 IN. COMMON
OWNER.....	COLUMBIA GULF TRANSMISSION C	UNITED GAS PIPELINE CO.	TRUNKLINE GAS CO.
SAMPLED.....	03/01/88	03/02/88	03/02/88
FORMATION.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE...	220	220	220
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	775	900	905
FLOW, MCFD.....	920000	431000	103700
COMPONENT, MOLE PCT			
METHANE.....	95.9	95.2	91.2
ETHANE.....	2.1	2.5	3.3
PROPANE.....	0.7	1.1	1.4
N-BUTANE.....	0.1	0.2	0.3
ISOBUTANE.....	0.3	0.4	0.4
N-PENTANE.....	0.0	0.0	0.5
ISOPENTANE.....	0.0	0.0	0.0
CYCLOPENTANE.....	TRACE	0.0	0.2
HEXANES PLUS.....	0.2	0.2	0.5
NITROGEN.....	0.2	0.1	0.1
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	0.0	0.0
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.4	0.3	2.1
HELIUM.....	TRACE	TRACE	TRACE
HEATING VALUE*.....	1055	1070	1099
SPECIFIC GRAVITY.....	0.589	0.595	0.642

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE 16 18654	INDEX SAMPLE 17 18583	INDEX SAMPLE 18 18584
STATE.....	NEW MEXICO	NEW MEXICO	NEW MEXICO
COUNTY.....	MCKINLEY	MCKINLEY	MCKINLEY
FIELD.....	FOUR CORNERS AREA	SAN JUAN BASIN	SAN JUAN BASIN
LOCATION.....	18 IN. & 20 IN.	2-24 IN. LINES, B PLANT	34 IN., A PLANT, FROM CHACO
OWNER.....	GAS CO. OF NEW MEXICO	EL PASO NATURAL GAS CO.	EL PASO NATURAL GAS CO.
SAMPLED.....	08/02/88	04/19/88	04/19/88
FORMATION.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE...	580	580	580
DEPTH, FEET.....	NOT GIVEN	NOT GIVEN	NOT GIVEN
PRESSURE, PSIG.....	420	800	800
FLOW, MCFD.....	50000	370000	370000
COMPONENT, MOLE PCT			
METHANE.....	87.9	90.9	93.2
ETHANE.....	8.8	5.5	4.4
PROPANE.....	2.0	1.1	0.6
N-BUTANE.....	0.1	0.2	0.0
ISOBUTANE.....	0.2	TRACE	TRACE
N-PENTANE.....	0.0	0.0	0.0
ISOPENTANE.....	TRACE	0.1	0.0
CYCLOPENTANE.....	0.0	0.0	0.0
HEXANES PLUS.....	0.0	0.0	0.0
NITROGEN.....	0.5	2.0	0.3
OXYGEN.....	0.0	0.0	0.0
ARGON.....	0.0	TRACE	TRACE
HYDROGEN.....	0.0	0.0	0.0
HYDROGEN SULFIDE.....	0.0	0.0	0.0
CARBON DIOXIDE.....	0.5	0.2	1.5
HELIUM.....	0.04	0.02	0.02
HEATING VALUE*.....	1111	1057	1038
SPECIFIC GRAVITY.....	0.629	0.607	0.598

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX SAMPLE	19 18656
STATE.....	UTAH	
COUNTY.....	SAN JUAN	
FIELD.....	NWP MAINLINE	
LOCATION.....	26 IN.	
OWNER.....	NORTHWEST PIPELINE CORP.	
SAMPLED.....	08/05/88	
FORMATION.....	NOT GIVEN	
GEOLOGIC PROVINCE CODE...	585	
DEPTH, FEET.....	NOT GIVEN	
PRESSURE, PSIG.....	765	
FLOW, MCFD.....	265000	
COMPONENT, MOLE PCT		
METHANE.....	90.3	-----
ETHANE.....	5.5	-----
PROPANE.....	1.4	-----
N-BUTANE.....	0.2	-----
ISOBUTANE.....	0.3	-----
N-PENTANE.....	0.0	-----
ISOPENTANE.....	0.0	-----
CYCLOPENTANE.....	0.1	-----
HEXANES PLUS.....	0.0	-----
NITROGEN.....	2.0	-----
OXYGEN.....	0.0	-----
ARGON.....	0.0	-----
HYDROGEN.....	0.0	-----
HYDROGEN SULFIDE.....	0.0	-----
CARBON DIOXIDE.....	0.3	-----
HELIUM.....	0.02	-----
HEATING VALUE*.....	1067	-----
SPECIFIC GRAVITY.....	0.615	-----

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 3. - SAMPLES FROM GAS AND OIL WELLS IN FOREIGN COUNTRIES

	INDEX SAMPLE 18585
COUNTRY.....	SPAIN
STATE OR PROVINCE.....	OFFSHORE
FIELD.....	GAVIOTA
WELL NAME.....	GAVIOTA
LOCATION.....	CANTABRIAN SEA (VISCAYA)
OWNER.....	REPSOL EXP., S.A./ELF AQUITA
COMPLETED.....	03/--/85
SAMPLED.....	03/--/88
FORMATION.....	CRET-GAVIOTA
GEOLOGIC PROVINCE CODE.....	000
DEPTH, FEET.....	8200
WELLHEAD PRESSURE, PSIG.....	3100
OPEN FLOW, MCFD.....	34000
COMPONENT, MOLE PCT	
METHANE.....	86.1
ETHANE.....	5.6
PROPANE.....	1.9
N-BUTANE.....	0.3
ISOBUTANE.....	0.4
N-PENTANE.....	0.0
ISOPENTANE.....	0.2
CYCLOPENTANE.....	0.0
HEXANES PLUS.....	0.0
NITROGEN.....	4.1
OXYGEN.....	0.0
ARGON.....	TRACE
HYDROGEN.....	0.0
HYDROGEN SULFIDE**.....	0.0
CARBON DIOXIDE.....	1.3
HELIUM.....	0.03
HEATING VALUE*.....	1055
SPECIFIC GRAVITY.....	0.646

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
 ** DUE TO THE ABSORPTION OF H₂S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

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